

Metal & Mech. & P.

A M E R I C A N

RAILROAD JOURNAL.

STEAM NAVIGATION, COMMERCE, MINING, MANUFACTURES.

HENRY V. POOR, *Editor.*

ASSISTANT EDITORS:

JAMES T. HODGE, *For Mining and Metallurgy.*

CHARLES T. JAMES, *For Manufactures and the Mechanic Arts.*

M. BUTT HEWSON, *For Civil Engineering.*

SATURDAY, JUNE 22, 1850.

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ESTABLISHED IN 1831.

NEW-YORK:

PUBLISHED WEEKLY, BY

JOHN H. SCHULTZ & CO.

Room 12, Third Floor,

No. 136 Nassau Street.

To the Proprietors of Rolling Mills and Iron Works.

THE Undersigned—Proprietors of Townsend's Furnace and Machine Shop, Albany—are extensively engaged in the manufacture of Machinery and fixtures for Iron, and Copper Rolling Mills, and Iron Works. Having paid particular attention to the manufacture of *Rolls* (Rollers), both *chilled* and *dry-sand*, they feel confident that they can execute orders for such castings in a satisfactory manner. And to give assurance of this, they beg leave to refer to the following named persons, proprietors and managers of some of the most extensive rolling mills in the country, viz: Jno. F. Winslow, J. Tuckerman, H. Burden, W. Burt, J. & J. Rogers, Salsus & Co., J. B. Bailey, L. G. B. Cannon, Hawkins & Atwater, etc., etc.

Albany, August 18, 1849.

FARMERS! ATTENTION!!

John Mayher & Co's
NEW AGRICULTURAL WAREHOUSE
AND SEED STORE,
197 WATER STREET, NEW YORK.

Where they have for Sale, the largest and most complete assortment of Farming Implements, ever offered for sale in this city—all of which they will sell 10 per cent. Cheaper than the same kind of Goods can be bought at any other house in the city. Our Goods are all Warranted to give satisfaction.

FARMERS wanting to purchase, will please call and examine our *Stock* before buying elsewhere. Among our assortment may be found the Celebrated Highest Premium Eagle Ploughs! together with all the most approved Ploughs now in use.

Also,—Horse Powers, Threshing Machines, Fan Mills, Corn Shellers, Straw Cutters, Corn Mills, Seed Sowers, Churns, Ox Yokes, Ox Scrapers, Hay Rakes, Horse Rakes, Patent Chain Pump (that never freezes nor rusts), and other Pumps; in fact we have everything for Farming Purposes—together with Guano, Bone Dust and other Fertilizers.

JOHN MAYHER & CO.,
197 Water st., N. Y.

February 9, 1850.
N.B.—J. M. & Co. also continue their Old Stand, at 195 Front street, near Fulton Market.

Machinery Oil.

WE the undersigned are now manufacturing an oil intended for the use of Railroads, Steamers and Manufacturing establishments. It has been in use several months and has given very general satisfaction. Our price is uniformly 70 cts. per gallon. Enquiries or orders attended to promptly. Address

ROBBINS, LANGDON & CO.,
133 Water street, corner Pine, New York.
CERTIFICATES.

Providence, March 22d, 1850.

Messrs. Robbins, Langdon & Co.,
Gentlemen: We have given your machine oil a thorough trial, and find that it possesses all the qualities that we could wish. as it works better than any sperm oil we have ever used. Our shafts that required oiling four times a day with the best sperm oil that we could get, work equally as well by the application of your oil twice a day, and your oil stands cold weather much better than any oil we have ever used. Our engineer having had years' experience in running and making engines, we put great confidence in his judgment, and he gives it as his opinion that your oil is fully equal to if not better than any he ever used; and we shall soon give you an order for more, as we do not want any other kind of oil as long as we can get yours.

Very respectfully yours,
JACKSON, CLARK & CO.

Bridgeport, Nov. 7th, 1849.

Messrs. Robbins, Langdon & Co.,
Gentlemen: After about three months' trial of your oil, I have come to the conclusion to use it entirely on the engines on the New York and New Haven and the New Haven and Northampton Railroads for the following reasons:

1. It wears quite as long as sperm oil.
2. So far as I have tried it, it keeps the Journals equally cool as sperm oil.
3. I have no complaint from our men about cleaning the engines, and presume it is equally as easy to clean an engine by using your oil as it is in using sperm oil.
4. I can see no reason why it is not equal to the best of sperm oil for lubricating machinery.
5. There is in my opinion a very great saving to all parties in using your oil for lubricating machinery.
6. I believe it will stand cold weather better than any sperm oil.

Very respectfully yours,
A. B. MASON, Supt. N.Y. & N.H. Railway.

Steamer Bay State, Oct. 22d, 1849.

Messrs. Robbins, Langdon & Co.,
Gentlemen: In answer to your request for my testimony as to the machinery oil manufactured by you, I will say that I have used it for some time past on the Bay State, and am perfectly satisfied that your statement to me of its good qualities, is correct. As far as its lasting properties go, it wears equally long as sperm oil, runs perfectly free, and has no appearance of thickening. As seeing is better than hearing, I would recommend you to send your friends on board our boat, and they can then, by ocular demonstration, judge for themselves. Yours respectfully, JOHN GRAY,
Engineer of Steamer Bay State, Pier 3, N.R.

Steamboat Knickerbocker, Sept. 22, 1849.

Gentlemen: Mr. Hall, Agent of the Norwich and New London Steamboat Co., placed in my hands some of your machinery oil, which he desired me to use on the engine and other machinery, which I have done, and was so much pleased with the working, that I recommended the owners to give you their orders.

I have been using the article since August 19, and with perfect satisfaction, and I am well satisfied that your oil is as good as the best of sperm for lubricating machinery. I am yours very respectfully,

SAMUEL CARTER,

Engineer of Steamboat Knickerbocker, Pier 18, N.R.
To Messrs. Robbins, Langdon & Co.,
Oil Merchants, 133 Water street, New York.

Steamboat Worcester, N. York, Oct. 15, 1849.

Messrs. Robbins, Langdon & Co.,
Gentlemen: I beg to acknowledge the receipt of your letter requesting my opinion as to your oil for machinery, which I had not time to reply to previous to my return to Norwich. I have been using your oil on the engine and machinery of the Worcester with perfect success, and have much pleasure in testifying as to its good qualities. In my opinion, the journals keep cooler with your oil than with sperm, and it wears equally well. Should you at any time wish to refer to me as to your oil, I beg you will do so without hesitation. Yours respectfully, JAS. CROOKER,
Engineer Steamboat Worcester, Pier 18, N. R.

New York, August 3d, 1849.

Messrs. Robbins, Langdon & Co.,
Gentlemen: I received your letter in regard to your oil for machinery, which I handed to our engineer, and have much pleasure in sending you an extract from his letter to me on the subject: "I have applied the oil sent me upon our hot journals and cylinders, and find that they keep cooler with it than with sperm oil. I cannot find any fault with the oil; although I have watched it carefully. I have also tried it against an equal quantity of sperm oil, and find it wears quite as well." You are quite at liberty to show this extract to your friends, and shall be happy to give any further certificate you may require. WM. RIDER,
Treasurer Union India-rubber Co., 19 Nassau st. N. Y.

New York, March 22d, 1850.

Messrs. Robbins, Langdon & Co.,
Gentlemen: I have been using your machinery oil on the engine and other machinery of the Steamer Southerner running from this to Charleston, and find it equal to sperm oil. I shall continue the use of the same, and you are at liberty to refer to me at any time. Yours respectfully, DAVID N. MAXON,
Chief Engineer Steamer Southerner.

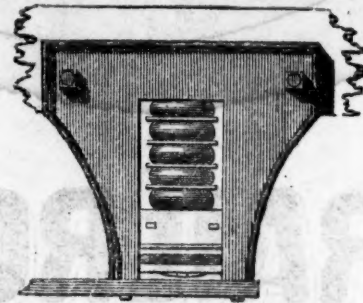
Steamboat C. Vanderbilt, N. York, Oct. 11, 1849.

Messrs. Robbins, Langdon & Co.,
Gentlemen: In reply to your inquiries respecting the qualities of your machinery oil, I am happy to inform you that I have been using the article sent me for some time past, not only on the engine but on all other machinery connected with it: and from a careful and close examination, I am well satisfied that your oil is as good as the best of sperm oil for lubricating machinery. I have recommended Mr. Lockwood the agent of the company, to give you their orders. Yours respectfully, JAMES BAKER,
Engineer Steamboat C. Vanderbilt, Pier 3, N.R.

Brooklyn, August 29, 1849.

Messrs. Robbins, Langdon & Co.,
Gentlemen: Your letter of the 29th was received, and I am happy to inform you that I have used your machinery oil throughout my establishment, and I am still of the opinion that it is as good as the best of sperm oil for lubricating machinery. I should be pleased at any time to have your friends witness the working, and I am sure, after once doing so, will give you their orders. Please send me another cask by the evening of the 3d, and by so doing you will much oblige, W. M. BURDON, Manufacturer of
Steam Engines and other Machinery, 102 Front st.

FULLER'S PATENT INDIA RUBBER SPRING.



THESE SPRINGS ARE THE CHEAPEST, the lightest and most durable of any yet known. They are easily applied to new or old cars, and there is small possibility of any accident occurring to them. Other parties through Mr. Ray set up claims to an India Rubber Spring which, though the same in principle, is very inferior in its working and durability. Actions are in progress for an Infringement on Fuller's Patent against parties using that Spring. The superiority of Fuller's Spring over that claimed by Mr. Ray is fully established and has frequently been testified to. The following are from gentlemen who have had much experience with both Springs.

"It will afford me pleasure to recommend your springs to the companies in this region, in preference to Ray's which I am confident are inferior in mechanical arrangement to yours." JOHN M'RAE,
Engineer S. Carolina R. R., Charleston.

"I do not hesitate to allow you to say that I concur in Mr. M' Rae's opinion that Ray's springs are inferior in mechanical arrangement to Fuller's. I repeatedly expressed that opinion long before Mr. M' Rae had seen your springs (as I believe) and entertain it still." WM. PARKER,
Gen'l Supt. of Baltimore and Ohio R. R.

Office of Sup't Norwich & Worcester R.R. Co. }
December 26, 1849. }

"I most fully concur in the opinion of Jno. McRae, Engineer of S. Carolina Railroad, that 'Rays Springs are inferior to Fuller's Springs,' and shall with pleasure recommend them to all Railroad Companies for adoption. I have used both springs on this road and have no hesitation in saying that I should in all cases prefer Fuller's Spring."

SAM'L H. P. LEE, JR.,
Supt. and Engineer.

Office B. & P. R. R. Co., }
Boston, 20th December, 1849. }

"This company have cars fitted up with both Ray's and Fuller's 'Metallic India Rubber Springs,' and I do not hesitate to say that Fuller's arrangement is very much superior to Ray's."

W. RAYMOND LEE, Supt.

The following result has been obtained by experiment upon one railroad.
A set of Trucks fitted with Steel Springs cost \$190.77 and weigh 2355 lbs.
The same with Fuller's Springs, 131.71 " 1911 lbs.
Difference, \$59.06 " 444 lbs.
Not only is there an advantage in the cost, but owing to the great reduction in weight, the car can be made lighter throughout, and so an enormous saving in weight may be effected in a Train.

AGENTS.

G. M. KNEVITT, 38 Broadway, N. Y.,
JOHN THORNLEY, 110 Chestnut St., Philad.
The BOSTON BELTING CO., Milk st., Boston.
January 2, 1850.

American Cast Steel.

THE ADIRONDAC STEEL MANUFACTURING CO. is now producing, from American iron, at their works at Jersey City, N.J., Cast Steel of extraordinary quality, and is prepared to supply orders for the same at prices below that of the imported article of like quality. Consumers will find it to their interest to give this a trial. Orders for all sizes of hammered cast steel, directed as above, will meet with prompt attention.
May 28, 1849.

IRON BRIDGES, BRIDGE & ROOF BOLTS,
etc. STARKS & PRUYN, of Albany, New York.
having at great expense established a manufactory with
every facility of Machinery for Manufacturing Iron
Bridges, Bridge and Roof Bolts, together with all kinds
of the larger sizes of Screw Bolts, Iron Railings, Steam
Boilers, and every description of Wrought Iron Work,
are prepared to furnish to order, on the shortest notice,
any of the above branches, of the very best of Amer-
ican Refined Iron, and at the lowest rates.

During the past year, S. & P. have furnished several
Iron Bridges for the Erie Canal, Albany Basin, etc.
—and a large amount of Railroad Bridge Bolts, all of
which have given the most perfect satisfaction.

They are permitted to refer to the following gentle-
men:

Charles Cook,	Canal Commissioners
Nelson J. Beach,	of the
Jacob Hinds,	State of New York.
Willard Smith, Esq.,	Engineer of the Bridges for
Messrs. Stone & Harris,	the Albany Basin.
Mr. Wm. Howe,	Railroad Bridge Builders,
Mr. S. Whipple,	Springfield, Mass.
	Engineer & Bridge Builder,
	Utica, N. Y.

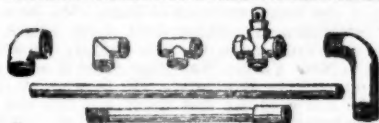
January 1, 1849.

**TO RAILROAD COMPANIES AND BUILD-
ERS OF MARINE AND LOCOMOTIVE
ENGINES AND BOILERS.**

PASCAL IRON WORKS.

WELDED WROUGHT IRON TUBES

From 4 inches to 48 in calibre and 2 to 12 feet long,
capable of sustaining pressure from 400 to 2500 lbs.
per square inch, with Stop Cocks, T. L., and
other fixtures to suit, fitting together, with screw
joints, suitable for STEAM, WATER, GAS, and for
LOCOMOTIVE and other STEAM BOILER FLUES.



Manufactured and for sale by
MORRIS, TASKER & MORRIS.
Warehouse S. E. Corner of Third & Walnut Streets,
PHILADELPHIA.

To Railroad Companies, etc.



The undersigned has at last suc-
ceeded in constructing and securing
by letters patent, a Spring Pad-lock
which is secure, and cannot be
knocked open with a stick, like other
spring locks, and therefore particu-
larly useful for locking Cars, and
Switches, etc.

Companies that are in want of a
good Pad-lock, can have open samples sent them that
they may examine and judge for themselves, by send-
ing their address to

C. LIEBRICH,
46 South 8th St., Philadelphia.
6m*

Mattewan Machine Works.

THE Mattewan Company have added to their Ma-
chine Works an extensive LOCOMOTIVE ENGINE
department, and are prepared to execute orders for Lo-
comotive Engines of every size and pattern—also Ten-
ders, Wheels, Axles, and other railroad machinery, to
which they ask the attention of those who wish such
articles, before they purchase elsewhere.

STATIONARY ENGINES, BOILERS, ETC.,
Of any required size or pattern, arranged for driving
Cotton, Woollen, or other Mills, can be had on favora-
ble terms, and at short notice.

COTTON AND WOOLLEN MACHINERY,
Of every description, embodying all the modern im-
provements, second in quality to none in this or any
other country, made to order.

MILL GEARING,

Of every description, may be had at short notice, as
this company has probably the most extensive assort-
ment of patterns in this line, in any section of the
country, and are constantly adding to them.

TOOLS.

Turning Lathes, Slabbing, Planing, Cutting and
Drilling Machines, of the most approved patterns, to-
gether with all other tools required in machine shops,
may be had at the Mattewan Company's Shops, Fish-
kill Landing, or at 66 Beaver street, New York.
WM. B. LEONARD, Agent.

HEAD QUARTERS FOR RUBBER GOODS.



The Union India Rubber Company,

MANUFACTURERS AND DEALERS IN EVERY VARIETY OF

GOODYEAR'S PATENT METALLIC RUBBER FABRICS,

Which they offer on the most liberal terms at their Warehouse,

NO. 19 NASSAU STREET, NEW YORK.

Articles which this Company has the exclusive right to make comprise in part

Beds,	Overcoats,	Life Preservers,	Mail Bags,	Camp Blankets,
Pillows,	Leggins,	Boat Floats,	Breast Pumps,	Travelling Bags,
Cushions,	Syringes,	Souwesters,	Saddle Bags,	Wading Boots,
Caps,	Canteens,	Gun Cases,	Clothing of all kinds,	Horse Covers,
Tents,	Buoys,	Portable Boats,	Carriage Cloth, assor.	Piano Forte Covers,
Bottles,	Maps,	Horse Fenders,	Hospital Sheetting,	Railroad Gum,
Tubs,	Sheet Gum,	Water Tanks,	Mattress Covers,	Hose, all kinds,
Caps,	Tarpaulins,	Army Goods,	Bathing Caps,	Shower Baths,
Pants,	Life Jackets,	Navy Goods,	Baptismal Pants,	Chest Expanders.

Together with all new applications of the Patent Rubber, which with Boots and Shoes, Packing, Machine
Belting, Suspenders, Gloves and Mittens, Tobacco Wallets, Balls, Baby Jumpers, Elastic Bands, etc., etc.,
will be sold to the Trade at Factory prices.

*. All orders for special articles to be manufactured, should be accompanied with full descriptions and draw-
ings.

October 20, 1849.

RAILROAD

India-rubber Springs.

If any Railroad Company or other party desires it,
the New ENGLAND CAR COMPANY will furnish
India-rubber Car Springs made in the form of washers,
with metallic plates interposed between the layers, or
in any other form in which they can be made; in all
cases guaranteeing the right to use the same against
any and all other pretended rights or claims whatsoever.

F. M. Ray, 98 Broadway, New York.
E. CRANE, 99 State Street, Boston.
1849.

**Brown's Old Established
SCALE WARE HOUSE,**

NO. 234 WATER ST., NEW YORK.

THE Subscriber, Practical Manufacturer of Scales
of every description, respectfully asks the atten-
tion of Railroad Companies to his Improved Wrought
Iron Railroad Track and Depot Scales which for
strength, durability, accuracy, convenience in weigh-
ing, and beauty of workmanship, are not surpassed by
any others in this country.

He is aware that this is rather a bold assertion for
him to make, yet he can say with confidence that they
have but to be tried to give them precedence over all
others.

Bank Scales made to order, and all Scales of
his make Warranted in every particular.

References given if required.

THE NEWCASTLE MANUFACTURING Co.
continue to furnish at the Works, situated in the
town of Newcastle, Del., Locomotive and other steam
engines, Jack Screws, Wrought Iron Work and Brass
and Iron Castings, of all kinds connected with Steam-
boats, Railroads, etc.; Mill Gearing of every descrip-
tion; Cast Wheels (chilled) of any pattern and size,
with Axles fitted, also with wrought tires, Springs,
Boxes and bolts for Cars; Driving and other wheels
for Locomotives.

The works being on an extensive scale, all orders
will be executed with promptness and despatch. Com-
munications addressed to Mr. William H. Dobbs, Su-
perintendent, will meet with immediate attention.

ANDREW C. GRAY,
President of the Newcastle Manuf. Co.

DEAN, PACKARD & MILLS,

MANUFACTURERS OF ALL KINDS OF

RAILROAD CARS,

SUCH AS

PASSENGER, FREIGHT AND CRANK CARS,

— ALSO —

SNOW PLOUGHS AND ENGINE TENDERS
OF VARIOUS KINDS.

CAR WHEELS and AXLES fitted and furnished
at short notice; also, STEEL SPRINGS
of various kinds; and

SHAFTING FOR FACTORIES.

The above may be had at order at our Car Factory,

REUEL DEAN,
ELIJAH PACKARD, } - SPRINGFIELD, MASS.
ISAAC MILLS, } 1y48

Iron Safes.

FIRE and Thief-proof Iron Safes, for Merchants,
Banks and Jewelers use. The subscriber manu-
factures and has constantly on
hand, a large assortment of Iron
Safes, of the most approved con-
struction, which he offers at much
lower rates than any other manu-
facturer. These Safes are made
of the strongest materials, in the
best manner, and warranted en-
tirely fire proof and free from dampness. Western
merchants and the public generally are invited to call
and examine them at the store of E. Corning & Co.,
sole agents, John Townsend, Esq., or at the manufac-
tory.

Each safe furnished with a thief-detector lock, of the
best construction.

Other makers' Safes repaired, and new Keys and
Locks furnished at the shortest notice.

H. W. COVER,
cor. Steuben and Water sts. Albany
August 24, 1849.



NEW YORK IRON BRIDGE COMPANY.

The Bridges manufactured by this Company having been fully tested on different Railroads, by constant use for more than two years, and found to answer the full expectations of their most sanguine friends, are offered to the public with the utmost confidence as to their great utility over any other Bridge now known. The plan of this Bridge is to use the iron so as to obtain its greatest longitudinal strength, and at the same time it is so arranged as to secure the combined principles of the Arch, Suspension and Triangle, all under such controlling power as causes each to act in the most perfect and secure manner, and at the same time impart its greatest strength to the whole work.

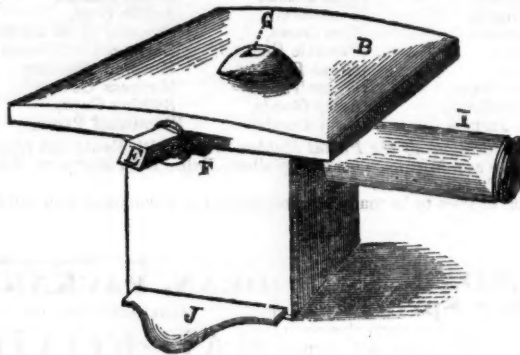
The NEW YORK IRON BRIDGE COMPANY are prepared to furnish large quantities of Iron Bridging for Railroad or other purposes, at short notice, and at moderate prices.

Models, and pamphlets giving full descriptions of the above Bridge, with certificates based on actual trial from undoubted sources, will be found at the office of the Company, 39 Jauncey Court, Wall st., or of W. RIDER & BROTHERS, 19 Nassau Street, where terms of contract will be made known, and where orders are solicited.

August 29, 1849.

M. M. WHITE,
Agent for the Company.

E. Harris' Patent Rotary Blacksmith Tuyere.



LETTERS Patent were issued January 9, 1849, to E. HARRIS, of Springfield, for an Improved Rotary Blacksmith Tuyere. Since that time there have been some hundreds put in operation, giving satisfaction and full proof of superiority over all others.

This Tuyere is so arranged that by one movement it can be changed from the largest work to the smallest; at the same time the fire is changed in proportion, thereby making a great saving in coal. Words cannot convey the full merits of this Tuyere; nor is it deemed necessary to speak in disparagement of other Tuyeres, as every smith is capable of judging for himself, and will give merit where merit is due.

I will simply say that there has not been a single instance where I have had my Tuyere put in use but it has given full satisfaction, and is recommended by all who have used them, as being superior to any other ever introduced. I would invite all to give them a trial; and the names of those using them being given, I hope it may induce others to try them, they recommend themselves.

Western Railroad Shop,	Springfield, Mass.
" "	Pittsfield, "
Connecticut val. "	Springfield, "
" "	N. Hampton, "
Hartford "	Hartford, Conn.
New Haven "	New Haven, "
Norwich and Worcester,	Norwich, "
N. York and N. Haven,	New Haven, "
Saratoga and Whitehall,	Saratoga, N. Y.
Vermont Central,	
Hudson and Berkshire,	Hudson, Mass.
L. Kingsley,	Canton, "

Hadley Falls Co. Ireland,	W. Springfield, Mass.
Sidney Patch,	Boston, "
Ames Manuf. Cor.,	Chickopee, "
American Machine w'ks,	Springfield, "
Dean, Packard & Mills	" "
G. Frank Bradley,	N. Haven, Conn.
Andrew Baird,	" "
Collis & Lawrence	" "
Slate & Brown,	Windsor Locks,
Gage,	Nashua, N. H.
Machine shop,	Manchester, "
Louis F. Lanney,	Baltimore, Md.
J. H. Baerdt,	179 Chambers st. N. Y.
J. Fanning,	Rochester, "
G. W. Hunt	41 Gold st. "
Chamberlain & Waldo,	" "
P. S. Burges, carriage maker,	" "
Samuel Miller,	" "
J. Leggett,	Steverson falls, "
J. E. Harris,	Hillsdale, "
John L. Graham,	Albany, "
David Dalsell,	South Egremont, Mass.
Roys & Wilcock,	Berlin, Conn.

Agents for the sale of Tuyeres:
B. B. Stevens in New York and Connecticut.
A. J. VanAllen has the Agency for the Western and Southern States, and is now travelling through those States. Any communication addressed to the patentee will receive prompt attention.

E. HARRIS, Patentee,
Springfield, Mass.

November 23, 1849.

Railroad Lanterns.

COPPER and Iron Lanterns for Railroad Engines, fitted with heavy silver plated Parabolic Reflectors of the most approved construction, and Solar Argand Lamps; manufactured by

HENRY N. HOOPER & CO.,

No. 24 Commercial St. Boston.
August, 16, 1849. 6m33

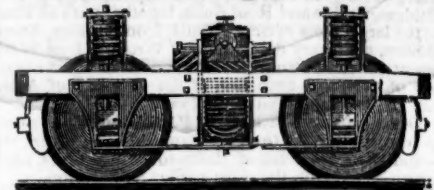
Gas Fixtures.

FIXTURES for Burning Gas for Lighting Public Buildings, Private Dwellings, Stores and Factories, manufactured by the subscriber in great variety. Orders by Mail, or left at the Factory on Causeway street, will be promptly attended to.

HENRY N. HOOPER & CO.

Boston, March 23, 1850. 6m13

F. M. Ray's Patent India-rubber Car Springs.



India-rubber Springs for Railroad Cars were first introduced into use, about two years since, by the inventor. The New England Car Company, now possesses the exclusive right to use, and apply them for this purpose in the United States. It is the only concern that has tested their value by actual experiment, and in all arguments in favor of them, drawn from experience of their use, are in those cases where they have been furnished by this company. It has furnished every spring in use upon the Boston and Worcester road, and, in fact, it has furnished all the springs ever used in this country, with one or two exceptions, where they have been furnished in violation of the rights of this company; and those using them have been legally proceeded against for their use, as will invariably be done in every case of such violation.

The Spring formed by alternate layers of India-rubber discs and metal plates, which Mr. Fuller claims to be his invention, was invented by Mr. Ray in 1844.—In proof of which we give the deposition of Osgood Bradley, of the firm of Bradley & Rice, of Worcester, Mass., car manufacturers, and men of the highest respectability. In this deposition, in relation to the right of parties to use these springs, he says:

"I have known Mr. Ray since 1835. In the last of May or the commencement of June, 1844, he was at my establishment, making draft of car trucks. He staid there until about the first of July, and left and went to New York. Was gone some 8 or 10 days, and returned to Worcester. He then on his return said he had a spring that would put iron and steel springs into the shade. Said he would show it to me in a day or two. He showed it to me some two or three days afterwards. It was a block of wood with a hole in it. In the hole he had three pieces of India-rubber, with iron washers between them, such as are used under the nuts of cars. Those were put on to a spindle running through them, which worked in the hole. The model now exhibited is similar to the one shown him by Ray. After the model had been put into a vice, witness said that he might as well make a spring of putty. Ray then said that he meant to use a different kind of rubber, and referred to the use of Goodyear's Metallic Rubber, and that a good spring would grow out of it." There are many other depositions to the same effect.

The history of the invention of these springs, together with these depositions, proving the priority of the invention of Mr. Ray, will be furnished to all interested at their office in New York.

This company is not confined to any particular form in the manufacture of their springs. They have applied them in various ways, and they warrant all they sell.

The above cut represents precisely the manner in which the springs were applied to the cars on the Boston and Worcester road, of which Mr. Hale, President of this road speaks, and to which Mr. Knevit refers in his advertisement. Mr. Hale immediately corrected his mistake in the article quoted by Mr. Knevit, as will be seen by the following from his paper of June 8, 1848. He says:

INDIA-RUBBER SPRINGS FOR RAILROAD CARS.—"In our paper yesterday, we called attention to what promises to be a very useful invention, consisting of the application of a manufacture of India-rubber to the construction of springs for railroad cars. Our object was to aid in making known to the public, what appeared to us the valuable properties of the invention, as they had been exhibited on trial, on one of the passenger cars of the Boston and Worcester railroad. As to the origin of the invention we had no particular knowledge, but we had been informed that it was the same which had been introduced in England, and which had been subsequently patented in this country; and, we were led to suppose that the manufacturers who have so successfully applied this material, in the case to which we referred had become possessed of the right to use that patent. It will be seen from the following communication, addressed to us by a member of the company, by which the Worcester railroad was supplied with the article upon which our remarks were based, that we were in an error, and that the springs here introduced are an American invention, as well as an American manufacture. How far the English invention may differ from it we have had no opportunity of judging."

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AMERICAN RAILROAD JOURNAL.

STEAM NAVIGATION, COMMERCE, MINING, MANUFACTURES.

HENRY V. POOR, Editor.

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American Railroad Journal.

PUBLISHED BY J. H. SCHULTZ & CO., 136 NASSAU ST.

Saturday, June 22, 1850.

An Essay on Pen and Pocket Cutlery,

Embracing a Detailed Description of the Mechanical, Chemical, and Manual Operations Performed on Certain Raw Materials, to Convert them into the Means, Implements, and Materials, for Manufacturing Pen and Pocket Knives.

BY A. L. HOLLEY.

Continued from page 370.

CHAPTER IV.—GRINDERS' ROOM, APPARATUS, IMPLEMENTS, AND MODE OF OPERATION. THE BURSTING OF A STOVE.

The grinding room of a cutlery establishment is always best lighted, usually from the South, that it may be warm, and particularly that the morning and evening sun may not shine directly upon the operator, who always faces the windows, and is divided into a series of frames, some two feet high, alternating with alleys and running back from the light. On the front end of each frame a grindstone

is hung on "points" in an iron trough (erroneously called by English grinders "trow") which reaches up to the axle on all sides, and is partially filled with water. A heavy plank seat, called the *horseing*, the lower front of which is fitted to the stone, is placed horizontally over the trough, its front directly above the axle, and its upper surface even with the stone's face, (thus leaving one fourth of the latter uncovered) and chained to the trough, that it may partially resist the force of the fragments should the stone burst. In the rear of the stones, are the glazers, lap wheels and polishers, which will be afterwards described.

For knife blades and razors, the Wickersly stone is used, which is a fine, sharp-grained, brittle, yellow stone, imported from the quarries of Wickersly in the vicinity of London. Their weight averages 150 pounds, though some weigh 175 pounds or more. They are from 24 to 36 inches in diameter, and from four to six inches in thickness, revolving by means of a band passing from a small drum on the axle to a large one in the rear from 500 to 700 times per minute. They are hung as stones usually are, then secured by cast iron plates which are screwed firmly against either side of the stone by a collar and nut on the shaft, in order that greater speed may with safety be applied; as stones simply wedged to the shaft often split by the velocity, the centrifugal force overcoming the cohesive attraction, and the fragments fly off in a tangent with tremendous speed.

There is one grinder, at least, in America, who has been seated over 17 different stones when they have burst, and who still pursues his work with as little apparent fear as ever. Persons are often killed or shockingly mangled by this cause, as the fragments usually crush all obstacles in their course. A grinder was once holding a sythe over a stone of great size, and moving at unusual speed, which, as he was bending over it, burst into halves, one of which was deeply imbedded in the earth beneath, the other carrying away with it the unfortunate grinder, tore up two floors above, and shot far into the air beyond the roof. Clots of gore, fragments of torn flesh, and snarled locks of hair, were seen hanging from the splintered floors, the walls were spattered with blood, and no portion of the body could be identified, such was the force of the mass below, and the resistance of the timber and plank above.

The majority of pocket blade grinders at the pre-

sent time, however, are as safe while pursuing their labors as the farmer in his field, as stones seldom burst; and when they do, the force of the pieces is so greatly diminished by the plates, that they seldom break the chains of the horseing. Another species of excessively hard, fine-grained, blue stone, found in Nova Scotia, is used for purposes which will be afterwards mentioned, and is hung in the same manner as the Wickerslies, though often without the plates, owing to its hardness and the consistency of its particles. The stones are turned on the faces and sides before using, and run so regularly that motion is scarcely perceptible.—The blades are held in small pliers, and ground on the mark, and the opposite, or pile side, and lastly on the back and swages. The faces of pen blades are left slightly concave, and of pockets convex.—The concavity of the former causes them to take hold faster, and is formed by holding the blade in one position on the stone, (which for pen blades is always of small diameter, being worn down some inches by pocket blades) and the convexity of the latter is made by "rolling" the blade on the stone. After grinding, the blades are thrown into fine lime which absorbs the water remaining on them with remarkable avidity, thus easily and effectually preventing oxidation. Lime will remain perfectly dry after having absorbed one third of its weight of water. After the stones are worn out for grinding pen knives, they are used for razors, or cast aside as useless except for walls and like purposes. The blade is held down to the stone by a small piece of leather termed the "patch," in the left, then in the right hand of the operator, and sends off a shower of steel particles ignited by friction, so that the sparks and water together fly off from the stone's surface in a body, each element apparently striving for the mastery. The stone is often made true and regular by holding on it a piece of nail rod, called the "racing iron." Blades which are crooked are made straight by means of a small setting hammer and an anvil which stands by the trough. A good workman will grind about one gross of pocket blades per day, or two gross of pen blades. Grinding steel is considered an unhealthy business, as it requires the operatives to bend constantly, and to swallow very fine steel and stone dust, though grinders are apparently as healthy and happy as other workmen, and are not obliged to labor steadily but rest frequently. This is, as before stated, a lucrative employment, if faithfully followed up and

attended to, and will be farther described in a following chapter.

CHAPTER V.—DESCRIPTION OF COMMON KNIVES AND THEIR PARTS. KNIVES CLASSIFIED. THE MAIN POCKET PATTERNS DESCRIBED. ODD AND UNCOMMON KNIVES DESCRIBED. SHORT HISTORY OF CUTLERY. SPRING KNIFE MANUFACTORIES.

Having classified, and followed the knife blades from the iron before it is converted into steel, through the processes of forging, tempering and grinding, and left them ready for the cutler, I will describe the different kinds of knives, and look into the department called the handle-maker's, or cutlers. There are many hundreds of patterns of pocket cutlery extant, but those in most universal use, and of far the greatest utility, do not probably exceed 200 in number, though covered with different substances and constructed from different materials, they may exceed a thousand different kinds. Knives usually consist of blades, springs, bolsters, scales, covering, shields and rivets. Springs are strips of steel, tempered with oil, by which they are enabled to take their former shape after being bent, and which, except in silver, or solid steel back knives, forms the back, and keeps the blade open or shut. Scales are thin strips of metal, forming the lining to the knife, to which the covering is rivetted, and to the ends of which the bolsters are fastened.

Middle scales form the partitions in all knives having an even number of blades above four, or in all one ended knives (or those having blades but in one end) which have more than one blade. Slips, are short half scales, running from the middle rivet, and dividing two or more of the blades in the pen end of all knives containing an odd number of blades. The covering is the scales of ivory, horn, etc., commonly called the handle. Bolsters are thick pieces of metal through which the blade rivet passes, and are with the thin metal scale called by the general name of scales, as they form a distinct part of the knife. The shield is a tablet or strip of silver inserted into the handle for ornament, or to receive the owner's name. Rivets number from one to sixty in knives of different dimensions and kinds. Some knives are composed of only three pieces—the blade, rivet and handle; the latter being a solid piece of steel, comprising the spring, scales and bolsters. Some scales and bolsters are a solid strip of metal sufficiently thick without covering. The sides of a knife without bolsters, but with covering, are called shadows. The principal patterns of knives in general use, are divided into jack, pen and pocket knives. Jacks, called by Sheffielders pockets, are of many different shapes and sizes, but always one-ended, finished in a cheaper manner than pockets or pens, and have always a large pocket, and often one or more large pen blades. Pen knives are both one and two-ended, usually smaller than pockets, and never containing any but pen blades, and are particularly adapted to quill pen making. The varieties of pocket knives in most general use may be reduced to three patterns, each of which may be of different sizes and materials, and contain different numbers of blades. They are the Norfolk, Congress, and Corboe or Wharncliffe patterns. Norfolk knives have a back irregularly concave each way from the middle rivet, blades sunk to the swages in the handle, and round ends. The inside edges of the front, which is convex, are finished with concave recesses through which the nail may reach the nail marks. The pattern is considered very genteel and handsome, and was named from the Duke of Norfolk. Con-

gress, or as formerly called by the Sheffielders "four blade" knives before used as Congress knives in this country, are now made with from two to eight or more blades. The knife is broadest at the middle rivet, with a convex front, and concave back. The blades are generally one forward point, or "sheep foot" pocket, a square and a forward point pen, and a nail blade. The corboe, or Wharncliffe knife, was made by one John Mason, 23 years ago, for Lord Wharncliffe, who it is said made the pattern from the shape of his leg. Great quantities of this variety are now manufactured in England and America. The back and front are serpentine, or each form an OG in architecture. The ends are round, and the pen end narrowest. The pocket blades of these and of Norfolks, both of which are generally three bladed, have a round tang end, and are not kept fast by the spring, when at right angles with the handle. Many other patterns are in use, among which are the Lady Wharncliffe, the coffin and fish patterns. Knives are often shaped like the human body, shoes, legs, cannons, etc. The English Parliament knives are usually one-ended, having two blades, a "bean head" (or a round head opposite the blade end), stag or buffalo covering, and steel scales and bolsters, and are called the "steel knife." They are made by Rogers, No. 6, or Mappin, No. 66 Norfolk street, Sheffield.

Knives are often constructed containing a great number of blades, as the lobster, baloon and round knife, in which the springs are invisible, and the blades open on each side. In Rogers' show room in Sheffield is a knife containing 1850 blades. It was made in 1828, and has received an additional blade every year. George the 4th of England was once presented with a knife, one inch long, containing 400 blades. In Rogers' show room, and elsewhere, may be seen knives containing blades of every variety, saws, chisels, gimlets, and carpenter's, shoemaker's, surgeon's and whittler's tools, of all sizes and shapes. Pistols and daggers are often inserted into knife handles, together with blades, also forks, cork screws, whistles and blades of every sort for the use of English hunters, and sporting gents who drink porter and eat cold ham in the woods.

Tanner's knives, containing their implements and blades, handles with blades in one end, and a machine for quill pen making on the other, and scissors knives are often made in Sheffield, but seldom in America.

Weapons called by Sheffielders 'fly open knives,' are constructed so that the blade will open by pressure on the shield, remain open by an apparatus called a lock, or catch back, and are shut by touching a spring connected with the latter. The Barlow knife, renowned in antiquity, had usually a long bolster, crooked handle and spear (often pewter) blade. They were once, as says the poet,

"—all the go,"

and the fever after them in some sections was very fatal among youth. Now only here and there a solitary relic remains of this celebrated "genus whittleendi," which is but a monument of the vicissitudes of taste and fashion. *Sic transit gloria mundi.* According to some authorities, coarse common jack knives, called whittles, were made in Sheffield as early as 1297, and spring knives began to be manufactured in 1643, which statement, being in a Sheffield history, is probably correct, although according to another author it was stated in our first chapter, that cutlery was first made in England in the year 1563. The first knives, at all

events, were like short swords, or daggers, having no joint or spring, but a round solid handle. Thus they were made for perhaps hundreds of years, when the better knowledge of metals and tools led to the construction of spring cutlery. This has been constantly improving, and almost perfectly supplying the wants and answering the purposes of those who use it, though its manufacture will be revolutionised by Americans, and its value consequently so much lessened, as to enable every man to carry what is now termed an expensive and fine knife. Within one hundred years, spring knives were composed entirely of steel, with the exception of the covering, and till lately all tanges were made square, like those of jack knives, the kick commencing at the neck of the blade. Those which are generally used in fine knives at present, were first introduced and patented by Rogers. There are many cutlery establishments in Sheffield, and some in other English cities, but the principal manufacturers of pocket knives in Great Britain, and at present in the world, are Rogers, Wolstenholme, (Columbia works) Mappin, and Wragg. Perhaps there are larger establishments than these, but these mentioned produce the best work.

There are several establishments in the United States, besides those in Connecticut, but are very small, and do comparatively a small business. Lakeville, Waterville, Naugatuck and Plymouth, Conn., produce the best American pen and pocket knives, and those which are equal in every respect to England's best.

To be continued.

From the Glasgow Practical Mechanics Journal.
A Chapter in the History of Railway Locomotion.

It has been observed by some sapient moralizer, that when a great work is to be done, a man is always found to do it—or rather, he steps forward of his own accord and undertakes the job. While we are not prepared implicitly to adhere to this wise saw, we cannot well escape its application in railway history, for it must be allowed that when thirty years ago, the increasing commercial importance of the country demanded a proportionately improved mode of conveyance, which should combine the requisites of economy, speed, and commercial practicability, George Stephenson got up and supplied the deficiency. This he did by the extension of the embryo system then partially in use in his own district of the north of England, for the conveyance of coals to the staiths, or shipping places.

The extent of these colliery lines did not exceed four or five miles, and, looking at the imperfection of the power employed upon them, little could be said of their chance of superseding horse labor.—It cannot, nevertheless, be said that, even at this early date, the great utility inherent in the system was not tolerable apparent to a few of those early mechanics whose names have now become interwoven with its fame. Their acute perception enabled them to distinguish, through the then crude and imperfect state of applied mechanics, the immense resources which lay shrouded in futurity, waiting for time and human experience to develop them. The first iron railway ever laid down, to the extent of twenty five miles, was the Stockton and Darlington line, which was opened on the 27th of September, 1825, the management of the working power, consisting of locomotives, stationary engines, and horses, being entrusted to Mr. Timothy Hackworth, of whose efforts in the introduction of locomotive mechanism we here propose to treat. Twenty miles were worked by locomotives and

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horses, the two classes of power being placed in competition with each other.* Owing to the inefficient condition of the locomotive power, the company had all but determined to abandon steam in favor of horses, when Mr. Hackworth proposed to construct an engine suitable for working the traffic on this extent of line. This offer was accepted by the company, and, by way of economy, it was determined that the boiler of Wilson's engine should be made to serve for the new one. This boiler was a plain cylinder, 13 feet in length, and 4 feet 4 inches in diameter. The heating surface was obtained from a double tube of malleable iron, in the form of the letter U, traversing the whole length of the boiler. One side of this tube was made available for the fire grate; and the heated vapor being passed through it, was returned by the opposite one to the chimney, which was actually a vertical continuation of this end. With this contrivance the engine had a heating surface double that of any other engine of its time. She was carried on six 4-foot wheels, four of them being spring mounted, and was the earliest of the six-wheel coupled class. The cylinders, 11 inches diameter, and 20 inches stroke, were placed vertically at what is now the smoke box end of the engine, and worked directly upon the first pair of wheels. At the same end was attached a malleable iron cistern, into which the water passed from the tank, previous to being introduced into the boiler, the driver having the power of regulating the supply; and a pipe from the steam exhaust was led into the cistern, for the purpose of admitting steam at pleasure, to heat the water. Another pipe was provided for the purpose of leading off a steam jet from the exhaust pipe at the chimney end, for discharge beneath the grate, the intention being to facilitate combustion.

In addition to its being the original of a class of engines now so universal, this engine was the first which had a blast pipe fitted to it, the whole of the exhaust steam—excepting only such a portion as was required for the purposes before alluded to—being conveyed into the centre of the chimney, and there thrown out in a jet from a conical pipe. She was named the "Royal George," and commenced working in October, 1827.

As an exposition of her superiority over the horses—which, be it remembered, were at this time in the ascendant, as regards their employment on railways—we may compare the actual results of the two systems of working.

Cost of "Royal George," \$425; number of tons conveyed by her in one year (1828) 22,442 tons over twenty miles; cost of conveyance, $\frac{1}{4}$ d. per ton per mile, or, including all repairs and maintenance, and interest on sunk capital, at 10 per cent., £466; an economy in working which is rarely exceeded at the present day, after a lapse of twenty three years. The cost of the same work performed by horses was £998, showing a difference of £532 in favor of this engine, over the animal power.

The points of improvement in the Royal George which conduced to this important result, evidencing not only her great superiority over her competitors, but the vast resources of the imperfectly developed locomotive system were simply these: the increased evaporative surface of the boiler; the perfect command over heavy loads in all states of the weather, by reason of the superior tractive adhesion derived from the six coupled wheels; and the in-

troduction of the blast pipe, an invention which alone will carry down the name of Hackworth to future ages in connection with early locomotive history.

Up to the period of which we write, no really efficient locomotive was in use, as the steam pressure invariably fell, in spite of the best efforts of the driver; and the superiority of the Royal George in this respect alone, at once elevated it far above its contemporaries, for it was capable of maintaining a speed of nine miles per hour throughout its run of twenty miles, in all weathers.

Among all the details of the locomotive, perhaps no one point has afforded so much material for speculative invention as the exhaust draught apparatus, and yet, out of the accumulation of schemes for this purpose, which have taken every advisable shape, as fanners and bellows, nothing has arisen to supersede the original blast pipe in the smallest degree. After twenty years' experience, nothing more has been elucidated than the simple fact that to get it as wide as possible is the ultimatum of perfection. In naming the novelties brought out in the Royal George, we must not forget to add that she possessed the first short stroke force pump, as also the first set of adjustable springs for the safety valves, instead of weights.

To illustrate the state of popular feeling prevalent at this time in reference to the contest between locomotives and horses on the Stockton and Darlington line, we extract a few passages from the letter addressed by Mr. Robert Stephenson to Mr. Hackworth, dated Liverpool, July 7, 1828:

"The directors having heard here, by some channel or other not favorable to locomotive engines, that there has always been a great number of horses on the line, and that the horses were beating the engines off—in answer to this I understood you to say, that at one time you had completely run the horses off, but in consequence of the late accident, and the heavy engine being laid aside, you had been obliged to employ horses again.—Was not this the sole cause of the horses being employed? and was there not an instance a little while ago, of the horses being entirely removed from the line of road? Please write me by return of post, or, at all events, at your earliest convenience, answers to these queries. I cannot wonder at the travelling engines having so much to contend, when I come in contact with enemies of them every hour; and they prove to be enemies without reason, they oppose the engines merely because certain things have been said against them."

The accident alluded to in this extract was the explosion of one of the engines, supposed to have been caused by a driver having neglected to remove a spring which was employed to steady the weight upon the safety valve lever during running, this removal being necessary whenever the engine stopped. The "heavy engine" was the Royal George, then undergoing repairs; hence the want of the two engines involved the necessity of employing horses until the repairs were effected. In a letter written by Mr. G. Stephenson, dated Liverpool, July 25, 1828, the following occurs:

"Brandreth has given a report here that you are going to lay off the locomotive engines. It is so? It was a great pity that the accident took place with the tubes. We have tried the new locomotive engine at Bolton; we have also tried the blast to it for burning coke, and I believe it will answer.—There are two bellows, worked by two eccentrics underneath the tender."

In the early part of the year 1829, as the Liver-

pool and Manchester line approached completion, the directors laid their heads together to determine on what kind of power they were to use. They had, in the previous year, formed a deputation from among themselves, to visit the different lines in the north of England, the counties of Northumberland and Durham being the only districts where the different systems of power were practised to any appreciable extent. It would appear that, notwithstanding the inspection by the deputation, they were yet unable to decide; and the only conclusion at which they arrived was, that owing to the great traffic anticipated on the new line, it would be impossible to work it by horses. This confined the question within narrower limits, locomotive and stationary engine power being the only systems available for choice.

To set the question at rest, two practical engineers were appointed to visit the Stockton and Darlington and Newcastle lines, and to report thereon.

The engineers chosen were Mr. Rastrick of Stourbridge, and Mr. Walker of Limehouse, who accordingly made a joint report on the subject, in March, 1829.

To be continued.

On the Application of Iron to Railway Structures.

Proportion of Load to Breaking Weight in Girders.—There appears to be a considerable difference of opinion as to the proportion between the greatest load which a girder should be allowed to bear and the breaking weight. There are two conditions under which the weight may be applied, viz: first, when stationary, as in the case of water tanks, floors, etc.; second, when the weight moves so as to cause concussions and vibrations, as in railway bridges. In girders required for the first case, Mr. Fox and Mr. T. Cubitt considered that the breaking weight should be three times the greatest load; Mr. P. W. Barlow four times; and Mr. Glynn would not make it less than five times the load.

In girders for railway bridges, Mr. Brunel states that he allows the load to be one third or two fifths of the breaking weight; but he considers that the rule he adopts for calculating the dimensions of his girders gives more than the usual strength. Messrs. Grissell and Charles May consider one third to be sufficient; Messrs. Rastrick, Barlow R. Stevenson and Joseph Cubitt adopt one sixth; Mr. Hawkshaw prefers one seventh, except in cases where great care is exercised in the selection of materials and workmanship, when a smaller proportion would suffice; and Mr. Glynn considers that in structures exposed to concussion and vibration the ultimate strength of a girder should be ten times the greatest load.

Tests for Girders.—The general opinion as to the amount of test which should be applied to girders, is that the test should amount to twice the greatest load. Mr. Joseph Cubitt would employ three times the greatest load, or half the breaking weight; and Mr. Thomas Cubitt considers it safer to test a girder almost to the extent that would break it than not to prove it at all, as the testing of girders is the only means of discovering defects under the surface, and concealed from the eye. Mr. Brunel, however, thinks that a girder should not be tested with a weight exceeding the greatest load, as the object in testing is to ascertain the soundness of the casting, which may be judged of by its appearance under the load, and all risk of permanent injury should be carefully avoided. Messrs. Rastrick, Glynn and Joseph Cubitt recommend that blows be applied to cast iron girders when under the testing load. Messrs. Hawkshaw and Barlow consider that where actual weight is used, sufficient vibration is given to the beam by throwing the weight into the scales used in testing. It is stated that, for convenience sake, girders are usually tested by means of the hydraulic press; but Messrs. Fairbairn, Lock, Brunel, Joseph Cubitt and Fox prefer using actual weight, on account of the uncertainty as to the actual pressure the hydraulic press brings upon the girder; though the latter gentleman considers that all liability to error in the press is obviated by an ap-

* There were, at this time, five locomotives on the line; four built by Messrs. Stephenson & Co., of Forth street, Newcastle, and one by Mr. Wilson of the same place.

proved construction which he has adopted. Mr. O. May states that, as girders are bought at the lowest possible price per ton, the manufacturer is compelled to adopt the most convenient and not the best mode for testing them, or ten times his profit would not pay him for the experiment.

Loads on the Bottom Flanch.—It is admitted that the mode of supporting the roadway on the bottom flanch of a girder causes torsion in the girder, tho' Messrs. Rastrick and Locke do not consider that the strength is diminished by the pressure being so applied; and Mr. Stephenson does not consider the torsion is of sufficient consequence to be noticed. In order to guard against any ill effects which might arise from the torsion, Mr. Locke, fits in transverse pieces of timber between the two girders which support a line of rails, chocked perfectly tight, and he ties the bottom web together with tension bars. Messrs. Fairbairn and Hawkshaw consider it would be advantageous to alter the form of girders to enable them to withstand the torsion. Mr. Fairbairn thinks the cross beams should either lay on the top flanch, or be suspended by hook bolts from the bottom flanch, in which opinion Mr. Glynne concurs. Mr. Hawkshaw would increase the top flanch of the girder, or would cast shoes or brackets on them to bring the bearing of the transverse joists close to the vertical web. Mr. P. W. Barlow has adopted a new form of bridge to avoid this torsion. Mr. W. H. Barlow observed considerable torsion in a girder without any top flanch. Fairbairn and Hawkshaw are of opinion that wooden cross bearers for the roadway are liable to increase the amount of torsion by bending; but Stephenson and Brunel state that wood is desirable as a cushion to prevent the noise and vibration which iron on iron would be subject to.

Length for Simple Cast Iron Girders.—The use of simple cast iron girders in bridges appears to be limited only by the power to make sound castings, which arises chiefly from the difficulty of pouring the metal equally, and the inconvenience of handling large masses. Rastrick, however, would not put any limits to the length. Hawkshaw considers that they may safely be made more than 50 feet long; in which opinion Fox and Grissell concur, but name 60 feet as the limit. Glynne, Chas. May and Joseph Cubitt would make them from 40 to 50 feet. P. W. Barlow, Fairbairn, W. H. Barlow and Stephenson state 40 feet as the limit; and Brunel names 35 feet, as he does not consider that sound castings can be ensured to a greater length. Fairbairn, however, mentions a girder in Holland 70 feet long cast in one piece.

Form for Simple Girders.—It appears to be universally admitted that the form resulting from Mr. Hodgkinson's experiments on the tension and compression of iron is that which gives the greatest strength; but the actual proportions are generally modified to suit the varying circumstances under which girders are employed. Stephenson sometimes makes the top flanch equal to the bottom one, usually in the proportion of 3 to 5, partly to obviate any risk from unequal cooling of the materials, and partly from the necessity of having a large top flanch to bolt the flooring to. In preference to using a single girder, Stephenson recommends two girders to be bolted together, with a baulk of timber between, to which the rail is fixed. Hawkshaw, Fox and Joseph Cubitt recommend that the top flanch be increased beyond the proportions given by Hodgkinson, in order to resist the lateral torsion. W. H. Barlow and Locke would use the arched form of girder whenever practicable, and the former gentleman says that straight girders have been in fashion, and consequently more used than practice actually required. Fox, in girders subject to dead weight only, would make the proportion of the top flanch to the bottom one as 1 to 6; but in railway bridges he recommends 1 to 4. Thomas Cubitt mentions that shoes or sockets, or any projections cast on girders, have a tendency to create flaws from causing the dirt to accumulate in those places, and he considers that the shape which will ensure a sound casting should be as much considered as the theoretical form of greatest strength.

Deflection of Girders, and Effects of Permanent Loads and Change of Temperature.—It is considered that girders should not deflect more than from one six-hundredth to one four-hundredth of their

length according to the form of the girder. It does not appear from the evidence that a weight equal to what a girder is constructed to carry, will, even if left on any length of time, cause the deflection of the girder to increase, unless subjected at the same time to considerable changes of temperature. Some experiments made by Fairbairn and Braidwood, show that iron loses a considerable proportion of its strength when heated to a temperature of more than 220° Fahr., and that it becomes uncertain below 32°. Clarke described the effect of the sun coming out and shining on the Conway tubular bridge for half an hour, to have been to raise the tube vertically one inch; and he mentions that at night, from the low temperature, the deflection was always greater than in the day time. Fox instances the effect of frequent and great changes of temperature on some short girders, 6 feet long, which support the hoods of the forges in his workshops. In the day time they are so warm that the hand can only just bear the heat: at night they become cold. The effect is to make the girders *swag*, and the *swagging* appears to be continually increasing. Some have attained as much as 3" deflection in the centre; but their strength does not seem to be impaired.

The general impression of engineers appears to be that the deflection caused by passing a weight at a high velocity over a girder is less than the deflection which would be produced by the same weight at rest; and the increase observed in many instances is attributed by Locke, Stephenson and Fox to the inequalities at the junction of the rails, or to the jerks of the engine. Hawkshaw, however, considers that the deflections would be increased, and has given some examples of a manifest increase.

P. W. Barlow has observed a slight increase, and W. H. Barlow, in reference to this subject, cites a curious phenomenon which he observed on a timber viaduct, viz: that with a heavy goods train at a low velocity, a certain amount of deflection was produced; but an express train passing immediately afterwards, with a much lighter engine, seemed to push the bridge like a wave before it.

Forms of Girders Beyond the Limits of Simple Cast Iron Girders.—The modes of construction which have been adopted by engineers for crossing spans beyond the limits of girders made of a single casting are very various; but the chief forms which have been adopted by engineers for girders of a compound nature in railway bridges may be classed under straight built girder of cast iron in separate pieces, bolted together; arched girders of cast iron; trussed girders; bow string girders; wrought iron box and tubular girders.

The Built Girder is formed of separate castings fitted closely at the joints and bolted together, and is entirely dependent upon the bolts for support. Mr. Grissell instances one of 120 feet span, and states that he should have no hesitation in making one of 200 feet span; but the engineers generally seemed to consider that other modes of construction disposed the material more advantageously. P. W. Barlow exhibited a new form of girder in separate castings for moderate spans.

The Arched Girder.—The cast iron arch is a mode of construction which all engineers concur in approving of, when not limited by considerations of levels or of abutments. Locke states that he would never willingly use cast iron in any other shape than that of an arch. W. H. Barlow has also adopted it where practicable.

The Trussed Girder is straight and of separate castings bolted together, assisted by wrought iron tension rods. The Dee bridge girder was on this principle. Stephenson caused an experimental girder to be made, to exhibit the effect produced by the tension rods, adjusted as they were in the Dee bridge girders, as well as the effect when adjusted to lie parallel with the bottom flanch and adjoining it; these experiments, in conjunction with some made by T. L. Gooch, show that the tension rods, though they do not, when acting at the angle, as they did in the Dee bridge girders, produce the full effect, yet that they add considerably to the strength of the girder. Rastrick and Fairbairn object to the trussed girder on account of the different rates of expansion in cast and wrought iron. Stephenson and Wild propose to obviate this objection by put-

ting the tension rod along the bottom flanch, and applying to it an initial strain of five or six tons per square inch, so as to cause the wrought iron to come into play as soon as any weight is applied to the girder. Fox approves of this arrangement, but he considers that a strain upon wrought iron tends to stretch the metal permanently, and that the tension rods would require to be tightened periodically, while Stephenson and Wild have concluded from their experiments, that with a less weight than ten tons per square inch, the elasticity of the metal is not affected. The measure of the strain upon the tension rods is the amt they are actually elongated by screwing up. As a combination of wrought and cast iron, P. W. Barlow has proposed to cast a bar of wrought iron in the bottom flanch of the girder and not to make the bottom flanch so large. Locke, Stephenson and May consider that the different rates of expansion of the two metals would be an objection to it. Brunel objects to the use of cast iron in long spans, and its combination with wrought iron, and prefers a framing of wrought iron and wood.

Bowstring Girder.—Messrs. Hawkshaw, Glynne, W. H. Barlow, Locke, Fox and Joseph Cubitt are agreed in considering the bowstring form of girder, with a bow either of cast iron or wrought iron cells, and the tension rods of wrought iron, as free from any objections urged against other modes of combining wrought and cast iron. It is considered applicable under almost all circumstances, as the roadway can be suspended from the bow.

Box or Tubular Girders.—Fairbairn considers these girders the best for large spans, and from some experiments he made, considers them capable of resisting not only dead weight but also impact. Stephenson states that they are cheaper and more elastic than other forms for spans of more than 40 feet, and he recommends that the top should be made of cast iron to resist compression. Glynne and Locke mention that they have been used for steam engines for some time, and consider the plan sound. Brunel looks upon the introduction of wrought iron into the construction of girders as the most important step that has been taken for some time in engineering; and he considers that, with ordinary care, and with the improvements which have been introduced in the mode of riveting, the joints made by riveting may be as permanent, and in every respect equal to the other parts of the structure, and he does not consider oxidation or vibration can affect them. With respect to riveting, Brunel considers that two plates should be riveted together so as to ensure their not breaking in any part contiguous to the rivets or joints, because the rivets should not act as pins or bolts, but as clamps which, by pressing the plates together, produce an enormous friction. Clarke, however, who has made a good many experiments on the subject, does not appear to have obtained so close an union of the plates, as he states that they generally broke at the riveting. Hawkshaw has adopted wrought iron girders for large spans, because he considers the use of wrought iron more advisable than cast iron for large spans; the box form is adopted to produce lateral stiffness. Fox and Rastrick consider that a large structure, like the Menai bridge, must be subject to sudden extension and compression from the changes of temperature.

Suspension Bridges.—Stephenson does not consider suspension bridges applicable to railways except to very small extent; and he states that he has been informed that an engine and train passing over one at Stockton (which has since been replaced by a girder bridge) pushed the bridge like a wave in front of it. Brunel states that, under very peculiar circumstances, he once proposed a suspension bridge himself. Brunel considers that the lattice bridge is advantageous only under circumstances which would prevent materials of more than a certain length being procured. Stephenson objects that the compression cannot be carried through them, and that the base through which the strain has to be carried is not sufficiently broad. It is stated, however, that Sir J. M'Neill has remedied the want of power to resist compression by introducing a cast iron top.

Best Form for Bridges Independently of Expense.—Messrs. Rastrick, Hawkshaw, Fox, P. W. Barlow, Glynne, Locke, Brunel and Cubitt, agree in considering that the best form for iron bridges is

large span is that of a cast iron arch. Grissell states that he considers a well made straight girder equally to be depended upon, but admits that the arch is the strongest form; and Fairbairn says that for spans beyond 70 or 80 feet he would prefer wrought iron tubular girders. Stephenson would use narrow wrought iron girders.

Action on Skew Bridges.—It does not appear that the deflection of girders is sufficient to cause oscillation in engines passing over skew bridges, by causing one side to be deflected to the full amount before the other. But Stephenson mentions that when the road has been in bad order, one wheel being on the solid angle of the brickwork, while the other was on the soft ballast, has caused considerable oscillation.

Effect of Impact and Vibration.—It is not admitted that the vibration caused by a railway train on bridges would injure the bolts or rivets of compound girders, if well made and strong in the first instance. Grissell gives them a large amount of surplus strength, as he thinks that when no greater strength of iron is put than is absolutely necessary, every jar must tend to loosen the joints, and he considers that vibration has much more effect on wrought iron than on cast iron. Fox states that he would not depend on a cast iron girder of separate pieces bolted together without strengthening it with a wrought iron tie bar, but the use of wooden sleepers interposes a cushion which does away with the vibration. W. H. Barlow mentions that with light engines he found felt very useful in diminishing vibration, but that with the heavy weights now in use on the Midland line any interposing medium is crushed out. Stephenson attaches no great importance to vibration, and has laid iron girders on brick without interposing medium; and the fact of old cast iron mill work having run for so long a time without breaking is cited by Hawkshaw as an instance of the apparently small effect of vibration. W. H. Barlow considers that the irregularities which exist on the road from uneven joints, etc., in the rails, is a greater cause of danger than vibration, and he mentions that, to experiment on the impact, he caused the rails to be whitewashed for a mile before the passage of a fast train of 12 carriages, and that the small imperfections in the joints caused spaces adjoining them of five inches in length to be left untouched by any of the wheels in the train.

Greatest Weights on Railways.—Mr. Hawkshaw states that locomotive engines are the greatest weights which can come on railways, and reckons 14 tons per foot lineal as the greatest weight for a single line of way. Fox, Fairbairn and Brunel, mention 14 tons. W. H. Barlow states that on the Midland there are engines on four wheels weighing 32 tons exclusive of the tender, but that that weight is too great for the permanent way, and that the rails are crushed and flattened by it. Stephenson and Locke state, 1 ton per foot lineal is the greatest weight which comes on a single line of rail.—*C. E. & A. Journal.*

What the English are Doing in the Way of Ocean Steam Navigation.

We have already had repeated occasion to refer to the gigantic enterprise the British Government has in hand to connect with a fleet of the first class the West Indies, Mexico, Brazil, and the Pacific. The main features of the plan are as follows:

There is to be a great trunk line of steamers—or as the Times well calls it, a "great steam bridge"—direct from Southampton to the Isthmus of Panama. Every fortnight, a first class steamer is to sail from Southampton by this line, stopping first at the Island of St. Thomas, which distance it will accomplish in about twelve days. In St. Thomas's Bay three branch steamers will be waiting; which receiving their respective mails, will instantly proceed on separate routes—one to Havana and the Gulf of Mexico—another to Porto Rico, Hayti, Jamaica, San Jago de Cuba, Honduras, Nicaragua, etc.; a third to the Windward and Leeward Islands, as far as Demarara.

The mail line steamer, having disposed of its branch mails, will steam on from St. Thomas's direct for the little town of Chagres, on the Isthmus of Panama. Here it will disembark its Pacific mails for transmission across the Isthmus; and receiving in return the homeward mails from the Pacific, will be ready for its return voyage.

Steaming back to St. Thomas's, it will there find the three branch steamers, whose return voyages from the three above mentioned routes will be so arranged that they shall always (except in case of accident) arrive in time to give and take mails with the trunk steamers; then it will proceed direct to Southampton, bringing the Pacific mails, and the mails of the three foregoing West Indian routes. It is calculated that, by this system of direct Atlantic steamers, an accelerated communication of from twelve to sixteen days will be secured for all the ports concerned.

To correspond with these arrangements for the Atlantic side of America, it is in contemplation by the Admiralty, "to agree with the Pacific Steam Navigation company for a fortnightly mail to and from Panama and Valparaiso, in place of the present monthly steamer." This will bring Chagres, and consequently England, into closer approximation to the western coast of South America.

There is to be a monthly mail to Brazil, with an independent line of packets. "Starting from Southampton, the steamers will proceed to Funchal, Madeira; Santa Cruz, Tenerife; Porto Praya, Cape Verde; Pernambuco, Bahai and Rio Janeiro. From Rio Janeiro there will be a branch packet to Montevideo and Buenos Ayres."

The distance between England and the Brazilian ports, according to the preceding arrangements, will be as follows:—To Pernambuco eighteen or nineteen days; Bahia twenty or twenty-one days; Rio de Janeiro twenty-four or twenty-five days.—The Brazil line may be ready by August or September next. The sum of £240,000 per annum now paid to the West India Mail Company for the conveyance of the West India mails alone, will, it is understood, suffice to cover the expenses of the whole proposed system; besides which there will be a retrenchment of £30,000 a year now spent in maintaining of Her Majesty's brigs between Falmouth and Brazil. All this, we may say in conclusion, increases the peregrinary necessity of the great canal across Panama, which will sweep the little town of Chagres out of its present impudent littleness into nothingness.

Method of Protecting Iron from the Oxidizing Influence of the Atmosphere.

In the Exposition of Works of Art and Manufacture at Paris, there were there exhibited numerous articles manufactured in iron, covered with a kind of transparent vitreous coating, completely spread over the surface of the metal, like a varnish, and capable of affording a perfect protection against the action of the air, or any other oxidizing agent.—This appears to be an invention susceptible of many useful applications; for, whether the iron be in the state of a rolled plate or bar, or drawn into tube; whether it be cast into water pipes or into articles of the most elaborate form and design, as vases, and other ornamental works, it can be equally well endowed with this protective coating—it is also a matter of indifference whether the article be made of forge or cast iron. The following is stated to be the process employed in imparting to the iron the vitreous surface:—Firstly, the object, whatever its shape may be, is thoroughly cleansed by dilute acid, which serves to remove, from the metallic surface, grease, dirt, and every trace of oxide; this is important, for, if any foreign matter remain upon the surface, the perfect adherence of the fused glass will be effectually prevented, when that part of the operation is reached—after the action of the dilute acid, the work is to be well washed and then dried; when perfectly dry, it must be brushed over with a tolerably strong solution of gum arabic, which may be applied by means of a camel hair brush. Over the whole extent of the gummed surface, powdered glass of peculiar kind, is then sifted, and care must be taken to cover every part of the surface with this powder, otherwise the vitreous coating will be imperfect when the operations are completed. When thus prepared, the work is introduced into a furnace or retort, heated to 100° or 150° centigrade; and, thoroughly dry, it is removed to another furnace, where it is brought to a cherry red heat; the vitreous matter, which adhered to the gummed surface of the metal, now undergoes fusion—the progress of this stage of the process is ascertained by looking through a small opening (contrived for this purpose) into the heated chamber. When the fusion is complete, and

the glass seems to have flowed over the whole of the surface, the article is removed from the furnace and placed in a close chamber, from which the air is entirely excluded—here it is kept until it has cooled down to the temperature of the atmosphere. The vitreous compound, applied to the surface of the metal, consists of the following substances:—Powdered flint glass, 130 parts; carbonate of soda, 204 parts; boracic acid, 12 parts. These must be melted together in a "glass pot," and a fusible glass will be the result; when cold, this must be pounded with care, so that it may be reduced to a powder sufficiently fine to pass through a silk sieve. When thus prepared, it is ready to be applied to the surface of the iron, according to the method described above. If, after the first process, the coating of vitrified matter on the metal should prove not to be quite perfect, the manipulation must be repeated; a second coat of powdered glass being applied in the same manner as the first. It is, above all things, necessary that the vitreous matter which forms the coating should be quite free from foreign matter; for, if this be not the case, or if the surface of the object to be coated be oxidised or greasy, the coating of glass will not adhere, and the result of the operation will be, consequently, very imperfect. It is possible, by modifying this process, not only to endow the surface of any article made of iron with a colorless vitreous varnish or glaze, but, as glasses of different colors may be used, with equal ease, an effect resembling enamel may be produced; and, as vitreous compounds of great fusibility may also be produced by merely varying the proportions or character of their constituents, it appears probable that this process may be applicable to works in other metals besides iron.—*Newton's London Jour.*

Review of the Iron Trade of France for 1849.

From the official returns of the iron manufacture in France, we find that great exertions have been made by the ironmasters to compete with England and Belgium, more particularly from the steps taken by government for the revision of the tariff, to allow of the importation of foreign iron and coal at reduced imposts. It appears that the total quantity of ore, from 98 mines, amounted to 30,078,129 quintals, valued at 18,080,000 frs., produced from 474 furnaces; 5,223,852 quintals of cast iron, from which was obtained 3,604,901 quintals of bar, sheet and other merchant iron. The total value of the iron produced is estimated at 138,931,832 frs., being more than double what it was 12 years since. Of the six different modes of manipulation in the iron manufacture adopted in France—the Catalan, Concois, Wallon, Nivernais, Champenois and English, the latter method is most adopted, being about one-half of the whole quantity in the republic, and which is principally effected by coal and coke.—The working of the iron and coal mines in France, one of its chief resources, and the consequent returns have increased since 1830 to a great extent; at that period the quantity of coal supplied was 18,626,659 quintals, and in 1848, it had risen to 47,000,000, the importation of British and Belgium coal increasing the consumption in the latter year to 65,000,000 quintals. The production of cast iron affords similar results; in 1830, the quantity made was 2,663,608; in 1849, it exceeded, as seen above, 5,000,000: 1,484,685 quintals of wrought iron were produced in 1830, while, in 1849, the make amounted to nearly 4,000,000. The price, which in 1830 was from 36 to 40 frs. per 2cwts. or quintal, in 1849 was selling at 26 frs., and is expected to be shortly down to from 23 to 25 frs. The collieries give employment to 69,340 persons receiving as a return for their labor 44,770,554 frs. The iron manufacture occupies 17,803 persons, and the total estimated to be employed in quarries, coal, and other mineral works, is 297,126 persons receiving 434,308,729 frs. per annum.—*London Mining Jour.*

New Banking House in Boston.

It is understood that the new banking house to be established in this city, to transact the exchange business of the Barings, will go into operation about the 1st of Sept. The style of the firm will be Gilmore, Blake & Ward. The reputation of the first two partners, Adrian Gilmore and George

B. Blake for shrewdness and sagacity, is well established in this community. Mr. Ward is the youngest son of Thomas W. Ward, Esq., the Boston agent for the Barrings for a long series of years. Mr. Ward, Jr., will doubtless bring to the banking house, good ability, family influence, and a very desirable foreign connection. Mr. Gilmore will probably retain the Presidency of the Western railroad till the annual meeting of the corporation in February next. It has been stated that the new firm will commence operations with a cash capital of \$250,000, and it is well known the parties have at command at least as much more.

Mr. Gilmore is at present in England, and it has been intimated that in addition to the usual business of bankers, the new firm will probably act as agents for European establishments for the sale of rails and other articles, for the furnishing and equipment of railroads. The establishment of so extensive a house in our city, is of more than ordinary interest, and but few firms have started under more favorable auspices.—*Boston Correspondence of the Newburyport Herald.*

Maryland.

Baltimore and Ohio Railroad.—The revenue of this work, for the recent month of May, shows an increase of upwards of \$9,000 over the corresponding month of 1849. According to a statement in the Patriot, the items of revenue are:

	For passengers.	For freight.
Main Stem.....	\$33,177 36	\$72,840 39
Washington branch....	24,543 72	4,240 69
	\$57,721 08	\$77,081 08

Making an aggregate of \$106,017 75 on the main stem, and \$28,784 41 on the Washington branch—the total being \$134,802 16. This shows an increase over the corresponding month of last year of \$4,390 80 on the main stem, and \$5,007 48 on the Washington branch—making together \$9,398 28.

In reference to the important matter of the extension of the road westwardly towards the Ohio river, we learn from the same source that at a meeting of the board yesterday, the remainder of the road from the Tygart's Valley Bridge to the city of Wheeling, was let to contractors, with the exception of about 35 miles, which await the decision of the board of arbitrators, to be made by the 1st of October next. The bidding was spirited, and the estimates of Mr. B. H. Latrobe, the Engineer, fully sustained throughout. The work will be commenced without a moment's delay. The whole line of this great work may now be said to be in the hands of contractors, and at prices below the original estimated cost.

The laborers now employed number upwards of 2500, and the monthly estimates will, when the whole line is under way, exceed \$100,000. Considerable progress has been already made upon all the heavy sections; several of medium class are very nearly, and some entirely finished. The great tunnel is progressing steadily, and with every prospect of completion within the time limited by the engineer.

The laying down of the iron will commence early next spring. The road to the mouth of Savage may be expected to be opened about June next, and the track will thence be pushed forward without interruption, and in an unbroken line until it reaches Wheeling.

The iron is now arriving in large quantities at the company's wharf at Locust Point, upwards of 2000 tons having been received in the last month. This iron is of excellent manufacture, and will compare favorably, as to cost, with any that has been imported. The recent sale of the company's bonds which were given in payment for the iron, has been made in London by the Messrs. Barrings, at 106 per cent., a gratifying evidence of the confidence which capitalists have in the work, and the gentlemen who have charge of it.

Tennessee.

General estimate of cost of completion of East Tennessee and Georgia railroad from Dalton, Ga., to Knoxville, Tenn., from 4th April, 1850, the date of Gen. Green's abandonment of his contract.

From Dalton to the Hiwassee River, 40 miles.	
Grading and superstructure, including the furnishing of the timber and laying down track.....	\$90,000
Depots, water stations, engine houses, &c.....	10,000
Iron rails, chairs and spikes.....	180,000
Road furniture, including engines, cars, &c.....	44,500
Add superintending, contingencies, &c.....	15,500
Total.....	\$340,000

From Charleston to Blair's Ferry, 40 miles.	
Finishing and repairing grade.....	\$20,000
Iron rails, chairs and spikes.....	180,000
Timber and track laying.....	36,000
Road furniture.....	35,000
Depots, &c.....	10,000
Add superintending and contingencies.....	9,000
Total.....	\$290,000

From Blair's Ferry to Knoxville, 30 miles.	
Grading, masonry and bridging, including bridge across Tennessee river...	\$280,000
Iron rails, chairs and spikes.....	135,500
Timber and track laying.....	25,000
Engineering, etc.....	9,500
Road furniture, including depots, etc.....	33,000
Add for contingencies.....	17,000
Total.....	\$500,000

Abstract of foregoing Estimates.	
From Dalton to Charleston.....	\$340,000
Charleston to Blair's Ferry.....	290,000
Blair's Ferry to Knoxville.....	500,000
Total cost.....	\$1,130,000

Account of the means of the East Tennessee and Georgia Railroad Company.	
State loan of \$350,000 in 6 per cent. bonds at 106.....	\$364,000
State 5 per cent. bonds to be paid Wm. Grant & Co., per contract at par.....	45,000
Unexpended of 5 per cent. bonds \$63,000 at 85.....	53,550
Stock of company to be paid William Grant & Co., per contract, at par.....	45,000
Total cash means.....	\$507,550
Required for completion of road to Hiwassee river.....	340,000

Amount at command for extension to Knoxville.....	\$167,550
Estimated cost of extension to Knoxville \$790,000, say.....	800,000
Amount to be raised on stock subscription.....	\$632,450
Of this amount it is safe to assume 15 per cent can be taken by contractors.....	94,868
Remainder.....	\$537,582
To this add floating debt of company, say.....	37,418
Amount of stock to be raised by citizens.....	\$575,000

We are informed that Dr. Ramsey, the agent of the State for disbursing the loan to the East Tennessee and Georgia railroad company, will probably leave for the north during the present week to make arrangements for purchasing iron and equipment for that section of the road between Dalton and the Hiwassee river.—*Knoxville Register.*

Georgia.

Waynesboro' Railroad.—It will be seen by reference to another column, that the directors of the Waynesboro' railroad advertise to receive proposals for the grading, masonry, bridging and superstructure of the northern division of this road. This part of the road, extending from Waynesboro' to

Augusta, is about thirty miles. The southern division, or that part lying between the Central railroad and Waynesboro', has already been contracted for, and it is now being built.

We are pleased with the energy with which the President and directors are pushing forward this great work. Savannah has never engaged in an enterprise which affected more vitally her general welfare, or one in which her citizens felt more personal interest.—*Sav. Rep.*

Michigan.

The *Michigan City News* has the following paragraphs concerning the rival railroads centering at that place:

Michigan Central Railroad.—The grading and bridging between New Buffalo and this place is about completed, and the road is ready to receive the iron, which is expected about the 1st of July. The road will probably be in readiness for the cars by the first of August.

Southern Railroad.—It is reported by the engineers employed on this road, that the contracts for grading said road from this place to the Illinois State line will be let in a few weeks.

New Hampshire.

Manchester and Lawrence Railroad.—We learn that the two thousand shares of preferred stock offered to the stockholders of the Manchester and Lawrence railroad have all been taken. The stock is guaranteed four per cent. annually, until the whole net earnings are sufficient to pay eight per cent. per annum, and then to be merged into one stock. The stockholders have from July to January to pay for this new stock. The present capital is \$250,000; this addition of stock will increase it to \$500,000—total \$750,000, the whole capital for the road, which is twenty-six miles long. We understand that this arrangement pays for the entire cost and equipments of the road.—*Traveller.*

New Railroad Project.—We learn that a party of engineers are engaged in surveying a route for a railroad from Dracut, Mass., to Derry, N. H.—The proposed road is to start from some point near the Central Bridge in Dracut, pass up the left bank of the Merrimack to the mouth of Beaver Brook, thence up that stream or near it through Dracut, Pelham, (N. H.) and Windham, to the line of the Manchester and Lawrence railroad in Derry. Mr. Peter Lawson, of Dracut, we understand, is largely engaged in the enterprise; and we should not be surprised to have to record that the railroad was in the hands of the builder, within one year from this date.—*Lowell Courier.*

Massachusetts.

Midland Railroad.—At a called meeting of the incorporators of this company, in this city, on Saturday, Robert Codman, presiding, and E. W. Ammidown acting as Secretary, it was voted to accept the act of incorporation passed at the last session of the Legislature.

Messrs. Farnum, Ammidown and Dunham, were appointed a committee to nominate a ticket for directors for the ensuing year, and the following named gentlemen were unanimously elected:

James M. Bunce, of Hartford, (President of Willimantic and Thompson railroad); H. N. Slater, of Providence, (President of Southbridge and Blackstone railroad); E. W. Ammidown, (President of the Norfolk County railroad); Marshall P. Wilder, of Dorchester, Welcome Farnum, of Blackstone, Robert Codman, Henry K. Horton, Joseph W. Ward, Thomas Richardson, Samuel S. Perkins, Isaac Adams, and Francis Brinly of Boston.

Messrs. Codman, Ammidown and Ward, were appointed a committee to prepare by-laws for the corporation.

Mr. Ammidown stated with much satisfaction, the legislature of Connecticut had empowered the city of Hartford to loan its credit to the Hartford and Willimantic road to the amount of \$500,000. The meeting then adjourned to Saturday next at 3 P. M.—*Bos. Cow.*

Ohio.

Cleveland and Toledo Railroad.

At the stockholders meeting of the Junction railroad company, for the election of officers, held at Elyria, on Friday last, the following named gentlemen were elected directors, for the ensuing year: Seymour W. Baldwin, Elijah DeWitt, Raymond Starr, Nahum B. Gates, Robert McEachron, Herman Ely, Jr., Orin Cowles, and Artemas Beebe, of Elyria; David Hamilton, of Milan; Alexander M. Porter, and Ebenezer Lane, of Sandusky; and John A. Foot and Herman B. Ely, of Cleveland.

A meeting of the directors was held subsequently; and Hon. Ebenezer Lane was chosen President, and Elijah DeWitt, Secretary and Treasurer. Means are already provided for the preliminary surveys; and the President has been instructed to put a corps of engineers on the route immediately. Committees are appointed to ascertain the amount of subscription, which can be procured along the line. They will make efficient work of it. There is every indication from the determination now manifest of the inhabitants through the region which it must pass, to have a road, that the requisite amount will be raised, and the work pushed forward without unnecessary delay.—*Cleveland Herald.*

Ohio.

Cleveland, Sandusky and Toledo Railroad.—We notice that our neighbors of Elyria and Sandusky are moving in this matter. Last Saturday, pursuant to notice given by the gentleman named as commissioners in the act of 1846, incorporating the Junction railroad company, the books were opened for subscriptions at Elyria, and the amount requisite to effect the organization of the company subscribed. A meeting of the stockholders is called for the 7th of June next, for the choice of directors, and to adopt measures to push forward the work immediately. It is understood that this company possess all the property and rights of the old Ohio railroad company, west of Cleveland; and that a part of the located line of that company, some small portions of which are already graded, will be adopted by this company.

Though aware that the movement has been in contemplation for some time, we have waited hopefully to see this last link in the chain of railroad communication from New York and Boston to Galena, filled up; and the work pushed forward on all the sections yet incomplete, simultaneously. Our expectations are now beginning to be realized. The Southern Michigan road, terminating at Toledo, and the Mad river and Cincinnati road at Sandusky, know the importance of the early completion of this road. There is every assurance, that the sound of the axe and clink of hammers will not cease to be heard, until the whole work is complete.—*Clev. Herald.*

Georgia Railroad.—The following is a comparative statement of the business of the Georgia railroad for the month of May, 1849 and '50.

	Passengers.	Freight, Mail, etc.	Amounts.
1850....	\$15,503 05	\$28,991 55	\$44,494 60
1849....	11,457 09	18,401 39	29,856 48
Increase.	\$4,045 96	\$10,590 16	\$14,636 12

Michigan.

Michigan Southern Railroad.—The Toledo Blade says: "We learn of a gentlemen from Coldwater that about one half the grading on the Southern railroad, between Hillsdale and Jonesville, is already completed, and the remainder will be by the 20th inst. The timber is already on the ground for laying the track, which will be ready to receive iron in time for its entire completion, by the 4th of July. There are two hundred laborers at work be-

tween Jonesville and Coldwater. It is said that this section will be ready for the iron by the 1st August. Our cars will run to Coldwater early enough in the fall to give us the benefit of the entire fall trade. With reasonably good wheat crops, there is no reason why we should not have a very active trade from this direction.

Kentucky.

The railroad track between this place and Lexington is now in fine order and the cars are running through, twice a day, in perfect safety, and making the distance in very good time. We passed up on them some days ago, and were gratified to see the number of passengers both going up and returning.—*Frankfort Yeoman.*

A Useful Contrivance.

The Detroit Tribune gives a description of a machine invented by Mr. Brooks, superintendent of the Michigan Central railroad, recently added to the conveniences of the large Depot at Detroit. The Tribune says the contrivance resembles a treading mill in an upright position, the top of which projects about one foot above the floor of the upper story, and the bottom the same distance below the ground floor. From what would be called the revolving floor or bed (were it a treading mill) project four pairs of arms equi-distant from each other, or about ten feet apart. The barrel is rolled against this revolving bed, and as a pair of arms come up from beneath the floor, the barrel is taken and carried into the story above. Immediately on arriving at the top of the bed its momentum carries it on an inclined plane, and it rolls away to the side of the room. Thus it unloads itself, and only needs one person to feed it below. It is said to save the labor of five men. It has been operated for a few minutes so as to hoist at the rate of one thousand barrels an hour. The bed commonly makes three revolutions per minute, carrying four barrels at each revolution, or 720 barrels per hour. It is operated by the same engine that is used for hoisting the grain.

New York.

The annual election of the Albany and Schenectady railroad company was held on Wednesday last at Albany, when the following gentlemen were chosen directors for the ensuing year:

John T. Norton, Ezekiel C. McIntosh, Rufus H. King, Herman Pumpelly, Lyman Chapin, Augustus James, Garrit Y. Lansing, of Albany; Thomas Tileston, Richard H. Winslow, of New York.

At a subsequent meeting of the board, John T. Norton was elected President and Ezekiel C. McIntosh Vice President. The board unanimously resolved that the construction account on the books of the company should be finally closed on the 1st of August next, the floating debt funded immediately, and that henceforth the revenues of the company should be strictly applied to the repairs and running expenses of the road, interest on the debt and to the payment of regular semi-annual dividends to the stockholders, reserving a suitable contingent fund. The business of the road since 1st January shows a handsome increase on last year, and it is still increasing. It is understood that a dividend of not less than 3½ per cent. will be declared next month; and that the net earnings for the present year will be considerably over 8 per cent.

The Buffalo Republican says: "We understand that the directors of the Buffalo and Attica, Tonawanda, Auburn and Rochester, and Syracuse and Utica railroads have passed resolutions authorizing a committee appointed by each road to immediately subscribe 5 per cent. on their capital stock to the Buffalo and State Line road. This amount, in connection with the subscriptions of individuals, makes an available capital of over \$500,000—sufficient to insure the immediate completion of the road to the State line. It is expected that the Albany and Schenectady, and Schenectady and Utica roads will also subscribe 5 per cent on their capital stock. A meeting of the different committees will be held in this city in a few days to complete the subscription."

From the Boston Shipping List.

Comparative Statement of the California Trade, Commencing January 1, 1849 and 1850, to Date.

	Clearances for California					Vessel Arrivals at	
	Ships.	Barks.	Brigs.	Schoons.	Steamers.	new California.	up. 1849. 1850.
Boston.....	32	37	23	19	111	53	10 45
New York.....	47	30	21	10	131	141	24 36
Baltimore.....	12	7	6	9	35	24	6 8
Philadelphia.....	7	10	2	6	25	12	6 18
New Orleans.....	9	7	4	4	24	10	5 8
New Bedford.....	6	6	2	3	14	18	2 12
Salem.....	4	3	1	1	7	5	1 7
Nantucket.....	1	1	1	1	2	7	1 4
Bath, Me.....	2	2	2	2	4	4	1 8
Portland, Me.....	1	3	1	1	4	4	1 8
Bangor, Me.....	1	1	1	1	2	2	1 3
Eastport, Me.....	2	1	1	1	2	2	1 4
Providence, R. I.....	1	1	1	1	6	6	1 7
New London, Conn.....	1	1	1	1	6	6	1 11
Other ports in Massachusetts.....	1	3	3	1	7	1	7
Other ports in Maine.....	1	3	3	1	7	1	7
Other ports in Connecticut.....	1	1	1	1	4	5	1 6
Other ports in Rhode Island.....	1	1	1	1	1	1	1
All other domestic ports.....	7	7	8	4	26	8	16
Great Britain.....	30	5	30	10	5	2	4
France.....	5	5	4	4	10	1	2
British Provinces.....	2	4	1	1	3	1	2
Sandwich Islands.....	1	1	1	1	3	1	2
Other foreign ports.....	8	12	4	1	27	6	135
Total.....	170	131	89	67	474	325	58 19 378
Total number of vessels which have sailed from the United States for California:							
Ships.	Barks.	Brigs.	Schoons.	Sloops.	Steamers.	Total.	
870.	343.	264.	207.	2.	28.	1397.	

Remington's Bridge.

The bridge which Mr. Remington has been building in this city, and which has excited much curiosity and speculation, was completed on Saturday and the scaffolding knocked away, under the direction of Mr. Remington, in the presence of a large concourse of people, and among them many doubting Thomases. The result was most triumphant for the inventor.

The beautiful structure, apparently too fragile to sustain its own weight, proved all that had been claimed for it. It was immediately put to the severest test. Hundreds of people passed over it, and it was conceded by the most sceptical that it would stand and answer all practical purposes. The bridge, which at a little distance resembles a slight ribbon or shaving of wood extended over a ravine beneath, four or five hundred feet in length, tho' looking as if it would not bear the pressure of a bird, is found to endure immense weight, in fact, it appears all that can conveniently be placed upon it. It is without hand rails, 436 feet span, 10 feet wide. The planks, which are at the abutments about six inches thick, fine away at each end towards the centre, to about one inch or an inch and a half, and are firmly joined by an impervious cement, the invention of Mr. Remington. The principle is regarded as eminently successful, and in all sections where lumber is a matter of moment, must prove of incalculable value.—*Alabama Journal*, June 10.

AMERICAN RAILROAD JOURNAL.

Saturday, June 22, 1850.

Ray's Patent India Rubber Car Springs.

Savannah, Ga., May 22, 1850.

FOWLER M. RAY, Esq.,

Dear Sir: I have no hesitation in saying, after having used on our road your springs and Fuller's, that I consider yours decidedly the best in every particular, and in this opinion I am sustained by all our officers. Fuller's spring has a tendency to split, and also to chafe or abrade by the constant friction on the cast iron plates or disc: and in my opinion is not near so elastic as yours.

Your springs, which have been in use on our road for 12 or 15 months past, and in constant use under both passenger and freight cars, are to all appearances as elastic, sound and good, as when first put in use.

We are now building eighty-five new cars, of which for fifty-sets the springs have been ordered of you.

GEORGE A. ADAMS,

Master Carpenter,

Central Railroad and Banking Co. of Georgia.

Connecticut River Railroad Office,

Northampton, May 4, 1850.

E. CRANE, Esq.,

Dear Sir: It is now about two years since I first tried the experiment of using a set of Ray's India-rubber Springs upon one of our merchandise cars, and although the car has been in constant service since that time, I do not on examination find the slightest difference either in the thickness or elasticity of the material.

The same result has followed wherever we have applied them, either for wheel or draw springs on Engines, Tenders or Cars. At present we use no other; either in replacing old springs or building new cars—and I am perfectly satisfied that for economy, durability, safety, and ease of motion, that Ray's India-rubber is the best article for Springs which has been presented to the public.

Yours respectfully, J. HUNT,
Supt. Connecticut River Railroad.

EDWARD CRANE, Esq.,

Dear Sir: Having applied to cars of the Boston and Worcester Railroad Corporation, Ray's Vulcanized Rubber Springs (where they have been in use for some two years last past), I have had occasion to observe their operation, and am free to say in answer to your inquiries, that they retain their elasticity perfectly during all changes of atmospheric temperature: and are in my opinion a most valuable acquisition to Railroad Cars—are not liable to derangement, as is the case with steel springs; while at the same time it costs less to apply them. Respectfully yours,

D. N. PICKERING,

Supt. Motive Power, Bos. & Wor. Railroad.
Boston, April 15th, 1850.

For the American Railroad Journal.

New England—Her Factories and her Railroads.

The recent depression in the price of New England factory and railroad stocks has, as we apprehend, a signification which should arrest the attention of her statesmen and capitalists. On the roads there has been no diminution of travel, and altho' the stock has not always been paid in full, and the companies have been in the money market as large borrowers, yet there has been no apparent lack of capital which would have sought investment in these shares or bonds had there been an entire confidence in the future dividends.

According to Mr. Lawrence, the first class factories in Massachusetts and New Hampshire have, for a series of eleven years, paid average dividends of nearly 9 per cent per annum. This interest on capital is large. It is an average of 3 per cent. at least, beyond the ordinary use of capital which is invested by large holders in this country. Yet the stocks of these same factories are at a heavy discount. This depreciation must be the result of a lack of confidence in the future capacity of these cotton mills to pay nine or even six per cent. dividends.

Does this lack of confidence grow out of the unprofitableness of the business itself, or the fear of a vacillating policy in the government on the tariff question, or does it indicate a fear that New England is not the district where manufactures can be carried on with the most economy and profit, where population will be most concentrated, and where railroads will be in the greatest demand as the instruments of a dense population, busy in exchanging commodities with each other and with strangers?

That the business of working up cotton, wool and iron in this country is, in itself, to be unprofitable, we cannot believe. We are too far advanced in civilization to warrant the belief that we shall discontinue those branches of industry by which that civilization has been measured. We cannot retrograde, and become a purely agricultural people. As to the changes and fluctuations in our tariff policy, we can see no reason to dread greater fluctuations for the next twenty years than have occurred in the last twenty years; and certainly, compared with the condition of manufactures of twenty years ago, the present manufactures stand on vantage ground. There is now more capital by far, vastly more experience, and more facilities of disposing of goods.

Is there not, then, an apprehension in the minds of capitalists and manufacturers that, neither in New England nor on the seaboard is to be the chief seats of manufacturing industry? Is it not perceived that the population of the Eastern States, at least in the manufacturing districts, has become already too dense for the subsistence capacity of the soil, and have not the instruments as well as the food of those districts become too costly?

As was suggested in a former number, the railroads from the ocean to the rich lands and minerals of the interior, and that they were made to bring the materials and food to us, and to carry the fabrics from us, have brought the producers and consumers so near together, and have so nearly made an equilibrium in the conveniences and luxuries of life, that men are now more than formerly disposed to leave the rugged hills and narrow valleys of the East for the wider and more fertile plains of the West; to sell high priced and buy low priced lands; and to move, once for all, the tools and the mouths

to the materials and the food instead of being at the yearly cost of moving the latter to the former.

If such are the natural tendencies, and if such are to be the results, would it not be wise in our New England friends to make a corresponding change in their action. The price of land is a matter of but little moment, when compared with the cost of subsistence. New England has made wonderful accumulations of money, capital and wealth in the form of mills, houses, roads, etc., but this has been the result of the profits of labor employed in working up foreign materials for foreign merchants, and by incorporating therein the food grown at home. Now it seems to be a question whether the current profits of this district are not absorbed in transporting heavy and bulky food from a great distance.

The remedy seems as obvious now as when capital of Boston and Salem was so largely transferred to the India trade and to commerce between New York and Calcutta and Canton. Mr. Cushing cannot, certainly, make both ends meet by the profits on fruit, flowers and stock from his princely estate at Waterton: he is not the less useful to his State, because he made his wealth abroad and liberally spends his income at home; but the man who toils hard in the Middlesex mills, and loves earth and trees as well as Mr. Cushing, cannot afford to satisfy his longings in Waterton, or if he does, he must ask a price for his labor that the Lowell mill owners cannot afford to pay.

Let the capitalists then build more mills abroad where land and food and materials are to be had at less cost. If need be, let them send abroad their coarse machinery that requires common laborers at low prices, and let these laborers follow if they cannot learn the use of finer tools; let high priced goods be made by high priced labor to support high prices of food and land. Then, it may be, all will again go well. But to us it seems anomalous that an increase of the coarsest work should be made where everything also indicates the highest skill and the most expensive labor and instruments of labor.

SCIOTO VALLEY.

We agree with the writer of the above that it would be for the interest of a portion of the New England manufacturers to transfer the scene of their operations to the valley of the Mississippi, as in such an event, they would more readily supply that market, and save the cost of transportation, both of their fabrics and food for the support of their labor. To supply the wants of this great valley would require an immense amount of machinery, and for new investments in this country we believe the west to be the best field. Still we believe, that at the present time, cotton cloths can be manufactured cheaper in New England than in any other part of the country, for the reason that we find there a more dense population, greater industry, a harder race, greater mechanical skill and ingenuity, and a more perfect education of all classes than in any other part of the country. At present, we believe these necessary conditions of cheap production, overbalance the superior advantages in other respects of other portions of the country. This advantage is not likely to be overcome for some time. For foreign commerce, the western manufacturer will hardly ever be able to compete with the New Englander. The success of the former will be limited at present at least to a monopoly of his own district.

The stocks of Massachusetts have been very much depressed from over investment of all kinds.

At present the cotton mills are doing a poor business, in consequence of the high price of cotton and the low price of the fabric. But this evil will soon correct itself. But that this great interest is likely to be depressed permanently we do not believe.—People must wear cotton cloth, and they must pay somebody what it costs to manufacture it, and every part of the country, and the world, will find in the New Englanders, rivals by no means to be despised. They possess more of the conditions of cheap manufacturing than can be found in the United States at least. The west may acquire this ultimately to a greater extent, but it must be a work of time.

The profits of manufacturing in New England are by no means to be measured by the present price of stocks, or by the profits received by the manufacturer. Just look at the cities that the cotton mills have built up, having aggregate values of millions, in which the manufacturer has no interest whatever. Here are seen the profits of manufacturing; and these cities still grow rapidly, notwithstanding the temporary depression which now rests upon the whole country.

Free Railroad.

New York has given to the country two good examples in her banking and her general railroad laws. By these, any number of persons may build as many railroads in any direction as they may choose. A company has the same liberty to build a railroad as a steamboat. The Legislature looks upon such persons as the best judges of their own interests.

If every State would adopt the same principle, it would be an immense advance upon the present systems in use. In all the States where charters are granted by the Legislature direct, as soon as one set of men obtain a charter, they are governed merely by their own interests, and naturally oppose all other charters which conflict with their own. Where there are a large number of companies, a combination of them is often able to control the Legislature of a State, and withhold what may justly belong to a particular section, or body of men. From the opposition thus encountered, railroad charters are in many cases obtained only at great cost and expense, which materially add to the cost of a line, and is the source of no little bribery and competition. The Parliamentary cost of many leading English lines have been greater than the entire cost of many of our roads, and this has been one of the causes of the great depression suffered by their roads.

All these evils can be avoided by making free the right to build these works. Neither would there be half the danger of pushing these works to an injurious excess, as under the old system.—Those engaging in their construction would simply consult their own interest, and would not be influenced by any other motive. The construction of these works would go on naturally as any other pursuit which is alike open to all.

North Carolina.

Central Railroad Stock all Taken.

The stock of the North Carolina Central railroad has all been subscribed for, and five per cent., the first instalment required by the charter, paid in on the whole amount of one million dollars. The fact of the completion of the subscription was ascertained at the meeting of the general commissioners at Chapel Hill last week.

A meeting of stockholders, for organization, etc.,

has been called for the 11th of July, at Salisbury, (according to act of incorporation.)

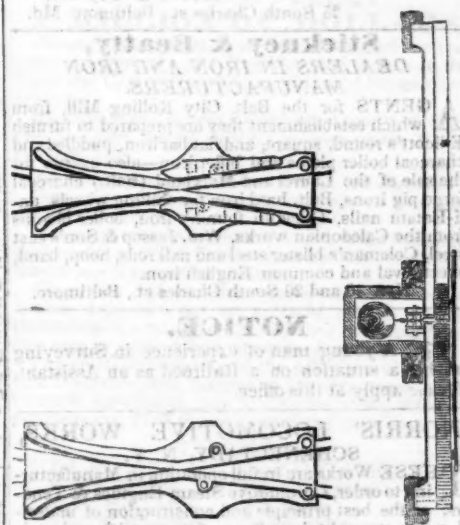
German Railway Car Headings.

We have examined at Doremus & Nixons, No. 39 Nassau street, some of the most beautiful specimens of these goods which we have ever seen.—That house has had for some time past an agent in Germany for the purpose of introducing these goods into this country, and we have no hesitation in saying that they are superior to anything of the kind for sale in the market. The body of the goods are of the finest description, and the figures, which are printed upon satin and silver ground, are of the most tasteful styles, and beautiful finish. In fact we have seen nothing equal to them, and we would recommend them to the attention of car builders, who can, with these trimmings, at a very slight additional expense, offer a much more attractive and saleable article to their customers.

New Invention.

Improved Railroad Frog.

We have been shown a model (of which we have annexed cuts showing the different parts of it,) of an improvement upon the Frog now in use on railroads. It entirely relieves the Frog from the wear to which it is now subject, and removes all danger of getting off the track when these occur. The great expense of keeping the Frogs in order, and the accidents which are constantly occurring upon roads, renders this improvement one of the great desiderata on all railroads. It has been in successful use in Pennsylvania, and we have seen certificates of the engineers and superintendents of some of the leading roads in that State, which speak of the improvement in the highest terms.—Below are annexed cuts, which will readily illustrate the invention. A model may be seen at our office, or at the American Institute.



Rhode Island.

Railroad Meeting at Providence.—A large and enthusiastic meeting of the most substantial citizens of Providence assembled on the 10th instant, to devise means for the speedy building of a railroad from Providence to Willimantic, to connect with the Hartford, Providence and Fishkill railroad. The Providence Post says:—"There was a degree of interest manifested in the enterprise, which promised to atone for our past neglect in a matter of such serious moment to our business interest." A resolution was passed, providing that

books be opened for the subscription of stock, under the charter already granted by the Legislature of Rhode Island. Twenty-four gentlemen of Rhode Island and Connecticut were appointed to carry the resolution into effect. This committee is authorized to call a meeting of the stockholders whenever one thousand shares are subscribed. Extracts from the reports of Mr. Lourie, who had been engaged to survey the route were read. It appeared that the estimates were favorable, statistics showing him the amount of manufacturing, travel, and general business of the line of the proposed road, were also read. A committee was appointed to confer with the directors of the Hartford and Willimantic, and the New London and Providence roads, with reference to the necessary connections. Subscription books were offered at the meeting. One gentleman, Alexander Duncan, Esq., subscribed thirty thousand dollars.

Rouse's Point and St. Johns Railroad.

The contract for building the railroad from St. Johns to Rouse's Point, a distance of twenty-four miles, has been let, and working survey will be made early this week. Henry Campbell, Esq., is the contractor. He has agreed, says the St. Albans Messenger, to complete the road during the present season.

Baltimore and Susquehanna Railroad Depot.

The depot erected for this company, on the square of ground between North and Calvert, and Franklin and Centre streets, has now approached so near to its completion as to enable the company to use it for the reception and despatch of passenger trains.

The depot, for spaciousness, convenience, and adaptation to the purposes for which it is designed, will compare most favorably in every respect with any in the United States. In its construction, a substantial strength and solidity have been combined with a beauty of architectural style which does great credit to the taste and skill of the architects from whose bureau the designs came, Messrs. Niernsee and Nelson. The front on Calvert street, we think, may justly be considered a most imposing and appropriate piece of architecture. The beautiful brown free stone, extensive quarries of which exist on the line of the railroad, has been introduced into the building with great effect. We are glad to see that this initiative has been followed, and that in improvements in different parts of the city this attractive and excellent building material is being largely used. The depot has been constructed to meet not only the present wants of the road, but those which will be consequent upon the largely increased business which may confidently be expected to seek our city through this avenue; and the President and directors of the road, in thus providing, with an enlightened and liberal policy, for the future, are deserving of the commendation of the community.—*Baltimore American.*

Commercial Street, Portland.

A fine business avenue with the above name, is about being opened in the chief city in Maine. It will be about a mile and a quarter in length, connecting the eastern and western depots, with a track running the whole distance. Its width is 100 feet, part of the way 130, with a solid sea wall on the lower side, capped by a granite sidewalk. It crosses nearly every wharf in the city, leaving about 50 to 100 yards of each dock above it. These

spaces will soon be filled, furnishing fine locations for warehouses fronting the water like those on the western rivers. Tracks will lead down most of the wharves, and the large business already in part pouring in over the northern and eastern roads, will be distributed through the commercial part of the place. The city extinguish the land claims, and pay all damages for buildings removed, one of which is the only distillery; and the Atlantic and St. Lawrence and Boston railroads build the street, at a cost of perhaps \$100,000, furnishing a large station house, where the broad and narrow gauge cars will meet and transfer their passengers. It is a spirited undertaking.—*Journal*.

Pennsylvania.

Ohio and Pennsylvania Railroad.

The prospects of this work, so vitally important to the interests of Pittsburgh, are highly flattering, and the force employed upon the line is constantly increasing. The lower portion of the new county road is already in use, and the upper part will soon be ready, so as to enable the contractors to proceed with the rock work and embankment of the railroad along the narrows. Some delay was caused by the legal proceedings to which the company was obliged to resort, on account of the opposition made by a few landholders, who opposed the construction of the railroad, or were unwilling to make amicable settlements on terms to which the company was willing to accede. Most of these cases have been adjudicated on moderate terms, and the company now has legal possession, and is prepared to press forward its work.

We learn from the Chief Engineer, Solomon W. Roberts, Esq., who has recently returned from a tour of inspection upon the railroad, which was extended to its Western terminus, west of Mansfield, that the work is going on very favorably, and that the people generally along the line show the most lively interest in its speedy completion. Those residing upon the western division are anxious that it should be finished as soon as the eastern part of the road; and, in order to expedite the completion of the work to Massillon, or the Ohio Canal, the County Commissioners of Stark County, who had already subscribed \$75,000, made an additional subscription last week of \$30,000 to the stock of the company. The contractors will be required to complete the grading and masonry of the line from Pittsburgh to Massillon, by the first of April next.

In Wayne County, the five heavy sections east of Wooster, which were put under contract last autumn, are now about two-thirds done, and the work has proved less expensive than was expected, as there has been less rock found in the cuts. The contractors are going on to complete those sections, and it is intended to press forward the work in Wayne County as fast as the payment of the instalments on the local stock will justify the board in doing it.

The location is now completed by Loudonville to Mansfield, and the general route of the road, to the point of intersection with the Cleveland and Columbus road, thirteen miles beyond Mansfield, is determined upon, and the detailed location will soon be made.

The directors of the Ohio and Pennsylvania railroad company trust that they will be sustained by the aid of all those interested in the enterprise, in their efforts to secure its speedy completion. It is emphatically, as it is called in Ohio, "THE PITTSBURGH RAILROAD," it cannot be perverted to the

injury of this city, and our citizens are bound by their own interests to see that the operations of the company are not retarded by the want of means.—The directors are now endeavoring to obtain the most direct entrance possible into Allegheny City, and the establishment of a depot at a site which will be most convenient for the citizens of that city and also of Pittsburgh.—*Pittsburgh Gaz.*



NORTHERN RAILROAD, NEW YORK.

CARS run between Rouses Point and Chateaugay daily, Sundays excepted, as follows:
Leave Rouses Point at 3³⁰ A.M.
Leave Chateaugay at 6¹⁵ P.M.

On the arrival of the cars at Chateaugay, stages are in readiness to take the passengers to Ogdensburg, where they arrive the same day.

Passengers leave Ogdensburg in the morning by stage, and take the evening train from Chateaugay to Rouses Point, where they go immediately on board the steamboats which run north and south on Lake Champlain.

Passengers leaving New York in the evening by the way of Whitehall, will arrive at Rouses Point the next night, and the next morning pass directly from the boat to the cars, and arrive at Ogdensburg the same day. CHARLES L. SCHLATTER, Supt.

Patent Self-clinching Railroad Spikes.



These spikes have been in use upon various roads for several years, and have met with universal approval by Engineers. They drive in the manner shown, turning themselves, and are therefore not liable to work loose. They will prove of great value to secure the chair.

We are also manufacturing railroad spikes, hook and flat head; wrought chairs, clamps, etc., of superior quality, and are prepared to contract for any pattern or weight upon favorable terms.

SMITH & TYSON,

25 South Charles st., Baltimore Md.

Stickney & Beatty, DEALERS IN IRON AND IRON MANUFACTURERS.

AGENTS for the Balt. City Rolling Mill, from which establishment they are prepared to furnish ENicott's round, square, and flat bar iron, puddled and charcoal boiler plates and billet iron—also agents for the sale of the Laurel and Maryland (Balt.) charcoal forge pig irons, Balt. hard iron for churning wheels, anti-Batam nails, Catoctin foundry iron, boiler blooms from the Caledonian works, Wm. Jessop & Son's cast steel, Coleman's blister steel and nail rods, hoop, band, sheet, oval and common English iron.

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A young man of experience in Surveying wishes a situation on a Railroad as an Assistant. Please apply at this office.

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THESE Works are in full operation in Manufacturing to order, Locomotive Steam Engines & Tenders, of the best principle and construction of material, using wrought iron heavy frames with pedestals welded thereto, and all parts of the engine made of the best wrought iron, except cylinders, pumps and boxes—obtaining greater durability, and carrying less weight over the road, than engines constructed of cast iron.

Wrought Iron Tires made any required size, and Tire Bars bent and welded with dispatch.

Chilled Wheels for Cars, Trucks and Tenders, made from the toughest iron.

Driving and Tender and Car Wheels fitted to Axles with Brass Boxes and Springs, and Railroad Machinery generally. Manufactured and for sale by

April 11, 1849. E. S. NORRIS.

Theodolite for Sale.

A FIRST RATE 5 INCH THEODOLITE for sale at a bargain. Enquire at the Railroad Journal Office.

Election of an Engineer.

At a Meeting of the Board of Directors of the Virginia Central Railroad Co. at Charlottesville on the 4th day of June, 1850,

Resolved, That the election of a Chief Engineer in the place of Wm. A. Kuper, whose resignation has been accepted, is postponed to take place in Richmond on Tuesday the 18th of June instant.

A copy from the minutes.

JOHN GARRET, Secretary.

Lovegrove's Patent Cast Iron Water and Gas Pipes.

THE Subscriber, the Inventor and Patentee of the Centrifugal mode of giving form to metallic substances while in a molten state, is preparing to make Cast Iron Water and Gas Pipes, of any dimensions, at prices much lower than they can be made in the old manner, and the pipes warranted to stand a pressure of three hundred pounds to the square inch, and to be soft enough to drill. Steam Engines and all kinds of machinery. Cast Iron Doors and Frames, and Mill Castings of every description, made to order.

THOMAS LOVEGROVE,

Machinist and Founder,

West Falls Avenue, below Pratt st., Baltimore.

American Railway Guide, AND POCKET COMPANION FOR THE UNITED STATES;

CONTAINING Correct Tables, showing the time for starting of trains from all stations, distances, fares, etc., on all the Railway lines in the U. States; also many of the principal Steamboat and Stage routes—accompanied by a complete RAILWAY MAP. Price, single copies 12¹ cts., or \$1 per annum. Published on the first of every month, corrected from returns furnished by the Railway Superintendents throughout the Union.

This book has been compiled somewhat on the plan of Bradshaw's Guide, with such improvements in size, form and arrangement as have seemed desirable; and the publisher confidently hopes it will not be found liable to the objections of incompleteness and incorrectness, which have been made, and justly too, against various other similar works heretofore issued.

The subscriber having had the management of the NEW YORK PATHFINDER almost from its commencement, has enjoyed superior facilities in obtaining information relating to the thoroughfares of travel, and is therefore well qualified to prosecute with success the arduous undertaking of furnishing a complete and correct national guide book.

STRINGER & TOWNSEND, General Agents, 222 Broadway: and sold also by Booksellers and Periodical Dealers generally throughout the country; also on all the Railways and Steamboats.

CURRAN DINSMORE, Publisher.

N. Y. Pathfinder Office,
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India-rubber for Railroad Cos.

RUBBER SPRINGS—Bearing and Buffer—Fuller's Patent—Hose from 1 to 12 inches diameter. Suction Hose. Steam Packing—from 1-16 to 2 in. thick. Rubber and Gutta Percha Bands. These articles are all warranted to give satisfaction, made under Tyer & Helm's patent, issued January, 1849.—No lead used in the composition. Will stand much higher heat than that called "Goodyear's," and is in all respects better than any in use. Proprietors of railroads do not be overcharged by pretenders.

HORACE H. DAY,

Warehouse 23 Courtlandt street.

New York, May 21, 1849.

To Railroad Companies.

FOR SALE—A Second-hand Locomotive Engine and Tender, of about 10 tons weight, in good order, and warranted to perform well. Any company wanting a cheap engine for a passenger or light burden train, will rarely meet with an opportunity so favorable as the present. The engine and tender are in perfect running order, and will be tested to the satisfaction of any one wishing to purchase. Price \$1,500.

Address

J. B. MOORHEAD,

Frazer P.O., Chester county, Pa. P.S.—The Engine can be seen by calling on H. Osmond & Co., Car-builders, Broad st., Philadelphia.

September 6, 1849.

Spikes, Spikes, Spikes.

ANY person wishing a simple and effective Spike Machine, or a number of them, may be supplied by addressing J. W. FLACK, Troy, N. Y. March 6, 1850.

Great American Engineering

AND MECHANICAL WORK, just published in a medium folio, 75 cts. to Subscribers, One Dollar to non-subscribers.

Part V of "Specimens of the Stone, Iron and Timber Bridges, Viaducts, Tunnels, &c. &c. of the United States Railroads." By George Duggan, Architect and Civil Engineer.

The present part contains beautifully executed plans, elevations and sections of the Timber Viaduct across the Canewacta Creek at Lanesboro', Pa., and the Details of the Starucca, (stone) Viaduct near Lanesboro', Pa., on the line of the N. Y. & Erie R. R., with the specifications, estimates, etc.

N.B.—This work is published by subscription of the most eminent in the engineering profession of the U. States, and will be completed in 12 parts, at 75 cents each to those who remit their names and subscriptions before the 1st June next—when the first 6 parts or one half of the work will be published—after which the price will be raised to \$1 per part.

To those making a present remittance of \$5, and the remainder \$4, when they have been supplied with the first six parts, the work will be forwarded regularly as published. Parties remitting \$9 shall receive it monthly post-free in any part of the United States.

"It is a work that was a great desideratum, and must prove of great benefit to the engineering profession generally, and especially to the tyro in practical engineering and mechanical knowledge; in truth it strikes us, that it would require years of labor and patient toil on the part of a young engineer to prepare the drawings, and collect the information that will be embodied in this work, and can now be secured for the trifling sum of \$9."—[Scientific Amer., March 16, 1850.]

In connection with this subject (Iron Railroad Structures) we take occasion to call attention again to Mr. Duggan's valuable and expensive publication, exhibiting drawings, with full descriptions of the various stone, iron and wooden bridges, viaducts, tunnels, culverts, etc., of all the Railroads in the United States. Mr. Duggan is an accomplished Architect and Civil Engineer, who came from Ireland to this country to exercise his profession; but finding railroad construction here, in many respects, different from that he had been accustomed to in Europe, he applied himself to the study of our system; and the fruits of his researches and investigations embodied in this work, are well calculated to meet the exigencies of engineers, and to assist draughtsmen, bridge builders, mechanics and students.—[N. Y. Journal of Commerce, Feb. 14, 1860.]

Published by **GEORGE DUGGAN**,
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To whom all communications should be addressed, and subscriptions forwarded.

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New York, 1850. 1yl6

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Best Cast Steel Royal Improved Files, well known as better adapted for Engineers' and Machinists' purposes than any now in use in the United States.

Every description of Square, Octagon, Flat and Round Cast Steel, Sheet, Shovel and Railway Spring Steel, etc., and Steel to order for any purposes—manufactured at their works in Sheffield—and universally known by the old stamp "Globe."

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April 22, 1849. 1y*17

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Mutual Life Insurance Co. of
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Pamphlets explanatory of the principles of Mutual Life Insurance, and illustrating its advantages, with forms of application, may be obtained at the office of the company, 35 Wall street, or of any of its agents.

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Charles Ely,	Wm. J. Banker,
John C. Cruger,	Eugene Duilh,
Walter Joy,	Francis S. Lathrop,
Alfred Pell,	John C. Thatcher,

JOSEPH B. COLLINS, President.
ISAAC ABBATT, Secretary. 3m9

NOTICE TO**Superintendents of Railroads.**

TYLER'S PATENT SAFETY SWITCH.—The undersigned would respectfully call their attention to his Patent Safety Switch, which from long trial and late severe tests has proved itself perfectly reliable for the purpose for which it was intended. It is designed to prevent the train from running off when the switch is set to the wrong track by design or accident. The single rail or gate switch is established as the best and safest switch for the ordinary purpose of shifting cars from one track to another, but it is liable to the serious evil of having one track open or broken when connected with the other. My improvement entirely removes this evil, and while it accomplishes this important office, leaves the switch in its original simplicity and perfection of a plain unbroken rail, connecting one track with the other ready for use.

The following decision of the Commissioner of Patents is respectfully submitted to Railroad Engineers, Superintendents, and all others interested in the subject.

P. B. TYLER.

(COPY.)

UNITED STATES PATENT OFFICE.

Washington City, D.C., April 28th, 1846.

SIR: You are hereby informed that in the case of the interference between your claims and those of Gustavus A. Nicolls, for improvements in safety switches—upon which a hearing was appointed to take place on the 3d Monday in March, 1846, the question of priority of invention has been decided in your favor. Inclosed is a copy of the decision. The testimony in the case is now open to the inspection of those concerned.

Yours respectfully,
EDMUND BURKE,
Commissioner of Patents.

To Philos B. Tyler.

Any further information may be obtained by addressing P. B. TYLER, Springfield, Mass., or JOHN PENNILETON, Agent, 149 Hudson St., New York.

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CUMBERLAND SEMI-BITUMINOUS COAL superior quality for Locomotives, for sale by

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No. 40 Wall St., New York.

May 12, 1849. 1m19

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Kimball & Gorton,

Having recently constructed the above works, are prepared to construct at short notice all kinds of

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Passenger Cars of all classes—Open and Covered Freight and Express Cars—Coal Cars—Hand Cars & Trucks of all descriptions.

They are also prepared to furnish Chilled Wheels of any pattern. Car Wheels & Axles fitted and furnished. Snow Ploughs and Tenders made to order. Steel and other Springs always on hand.

All orders will be filled at short notice, and upon as good terms as at any other establishment in the country. Omnibuses from the Exchange run within one square of the manufactory every 10 minutes during the day.

Philadelphia, June 16, 1849. 1y25

C. W. Bentley & Co.,

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Their Engines are simple in their construction, compact and durable; they require no brick work in setting them, and occupy but a small space (a six horse power engine and boiler, standing on a cast iron plate of three by six feet.)

They also manufacture Major W. P. Williamson's new oscillating Engine; a superior article, combining cheapness and simplicity (one of which may be seen in operation at their shop.) Both of these engines are adapted to any purpose, where power is required, and may be made of any capacity; and for economy in use of fuel are unsurpassed.

All kinds of machinery made to order. Steam Generators, Force Pumps, Wrought Iron Pipes and Fittings for Steam, Water, Gas, etc., constantly on hand, Baltimore, June 6, 1849.

CORROSIVE SUBLIMATE.

THIS article now extensively used for the preservation of timber, is manufactured and for sale by **POWERS & WIGHTMAN, manufacturing Chemists, Philadelphia.** Jan. 20, 1849. 1m19

ENGINEERS.

Atkinson, T. C.,
Alexandria and Orange Railroad, Alexandria, Va.

Banks, C. W.,
Civil Engineer, Vicksburg, Miss.

Berrien, John M.,
Michigan Central Railroad, Marshall, Mich.

Buckland, George,
Troy and Greenbush Railroad.

Clement, Wm. H.,
Little Miami Railroad, Cincinnati, Ohio.

Cozzens, W. H.,
Engineer and Surveyor, St. Louis, Mo.

Alfred W. Craven,
Chief Engineer Croton Aqueduct, New York.

Davidson, M. O.,
Eckhart Mines, Alleghany Co., Maryland.

Fisk, Charles B.,
Cumberland and Ohio Canal, Washington, D. C.

Felton, S. M.,
Fitchburgh Railroad, Boston, Mass.

Floyd-Jones, Charles,
South Oyster Bay, L. I.

Gzowski, Mr.,
St. Lawrence & Atlantic Railroad, Montreal, Canada.

Gilbert, Wm. B.,
Rutland and Burlington Railroad, Rutland, Vt.

Grant, James H.,
Nashville and Chattanooga R. R., Nashville, Tenn.

S. W. Hill,
Mining Engineer and Surveyor, Eagle River, Lake Superior.

Holcomb, F. P.,
Southwestern Railroad, Macon, Ga.

Johnson, Edwin F.,
New York and Boston Railroad, Middletown Ct.

Latrobe, B. H.,
Baltimore and Ohio Railroad, Baltimore, Md.

Miller, J. F.,
Worcester and Nashua Railroad, Worcester, Mass.

Morris, Elwood,
Schuylkill Navigation, Schuylkill Haven, Pa.

Morton, A. C.,
Atlantic and St. Lawrence Railroad, Portland, Me.

McRae, John,
South Carolina Railroad, Charleston, S. C.

Nott, Samuel,
Lawrence and Manchester Railroad, Boston.

Prichard, M. B.,
East Tennessee and Georgia R. R., Cleveland, Tenn.

Roebbling, John A.,
Trenton, N. J.

W. Milnor Roberts,
Bellefontaine and Indiana Railroad, Marion, Ohio.

Roberts, Solomon W.,
Ohio and Pennsylvania Railroad, Pittsburgh, Pa.

Sanford, C. O.,
South Side Railroad, Virginia.

Schlatter, Charles L.,
Northern Railroad (Ogdensburg), Malone, N. Y.

Sours, Peter,
Rahway, New Jersey.

Stark, George.,
Boston, Con. and Mont. R. R., Meredith Bridge, N. H.

Steele, J. Dutton,
Pottstown, Pa.

Trimble, Isaac R.,
Philad., Wil. & Baltimore Railroad, Wilmington, Del.

Tinkham, A. W.,
United States Fort, Bucksport, Me.

Thomson, J. Edgar.,
Pennsylvania (Central) Railroad, Philadelphia.

Troost, Lewis,
Alabama and Tennessee Railroad, Selma, Ala.

Whipple, S.,
Civil Engineer and Bridge Builder, Utica, N. Y.

Williams, E. P.,
Auburn and Schenectady Railroad, Auburn, N. Y.

Williams, Charles H.,
Milwaukee, Wisconsin.

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This Extensive Establishment, erected expressly for a Hotel, with every regard to comfort and convenience, is situated in the centre and most fashionable part of the city, and but a few minutes' walk from the Railroad Depots and Steamboat Landings.
The House has lately undergone a thorough repair, embracing many valuable improvements, and will accommodate 250 Guests. BARNUM & CO.

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On the European Plan,
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" Barston, Pope & Co., "
" Earps & Brink, Philadelphia.
" E. Pratt & Brother, Baltimore.
John Barstow, Esq., Providence.
Lewis Bullard, Esq., Boston.
February 9, 1850. 6m*

United States Railroad Guide and Steamboat Journal.
CONTAINING OFFICIAL TIME ADVERTISEMENTS, Tables of Stations, Distances, Fares, Time, etc., with much miscellaneous matter for the travelling public. Price 12 cents a copy. Yearly subscription \$1. Published at 43 Ann street, New York.

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STEEL,
Of all Descriptions, Warranted Good.
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A full Stock of Steel and Files at all times on hand. 6m4

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matical drawing insts. various qualities, together with
a general assortment of Ivory Scales and small insts.
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Pig Iron, Hammered Railroad Car and Locomo-
tive Axles, Force Pumps of the most approved con-
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Rams, etc., etc.
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PATENTEE OF THE

HERRON RAILWAY TRACK.Models of this Track, on the most improved plans,
may be seen at the Engineer's office of the New York
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NORRIS' LOCOMOTIVE WORKS,

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Are Manufacturing Wrought Iron Driving, Truck,
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Chucks, Drills, Planers, Force and Suction Pumps;
Tenoning, Mortising and Boring Machines, Shingle
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are such that he can supply, at very short notice, large
quantities of machinery.
November 23, 1849.**George O. Robertson,
BROKER IN SCOTCH AND
AMERICAN PIG IRON;**

Bar Iron, Lead, Spelter, Tin, Copper, etc.,

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(Near Broadway.)

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**Manufacture of Patent Wire
ROPE AND CABLES,**

For Inclined Planes, Suspension Bridges, Standing

Rigging, Mines, Cranes, Derrick, Tillers, &c., by

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GENUINE WICKESLY GRINDSTONES

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IRON.**Railroad Iron.****3,000** TONS C. L. MAKE 63½ lbs. per yard,
now landing and to arrive.Also contracts made for future delivery of above su-
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300 Tons Banks Best Iron, Round, Square and Flat.

200 " English Bar " " " "

10 " 9-16 Square Iron for Railroad Spikes.

For sale in lots to suit purchasers by

DAVID W. WETMORE.

New York, March 26, 1850. 3m

SPRING STEEL FOR LOCOMOTIVES, TEN-

DERS AND CARS.—The subscriber is engaged

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width, and of any thickness required: large quantities

are yearly furnished for railroad purposes, and wher-

ever used its quality has been approved of. The estab-

lishment being large, can execute orders with great

promptitude, at reasonable prices, and the quality war-

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Albany Iron and Nail Works.

Railroad Iron.THE Undersigned, Agents for Manufacturers, are
prepared to contract to deliver Rails of superior
quality, and of any size or pattern, to any ports of dis-
charge in the United States.

COLLINS, VOSE & CO.,

74 South St.

New York, June 1, 1850.

Railroad Iron.

1,500 Tons weighing 53 lbs. per lineal yard.

500 " " 57 " " "

500 " " 56 " " "

500 " " 60 & 61 lbs. "

Also 2½x½ flat rails. All the above being of approv-

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DAVIS, BROOKS, & CO.,

68 Broad street.

N.B.—Rails imported on commission, or at a fixed

price.

Iron.Pig Iron, Anthracite and Charcoal; Boiler and Flue
Iron, Spring and Blistered Steel, Nail Rods, Best Re-
fined Bar Iron, Railroad Iron, Car Axles, Nails, Stove
Castings, Cast Iron Pipes of all sizes, Railway Chairs
of approved patterns for sale by

COLEMAN, KELTON & CAMPBELL,

109 N. Water St., Philadelphia.

IRONDALE PIG METAL, MANUFACTURED

and for sale by the Bloomsburg Railroad Iron Co.

LINDLEY FISHER, Treasurer.

76 N. Water St., Philadelphia.

Railroad Iron.**2000** Tons, weighing 53 pounds per lineal yard,
of the most approved pattern of T rails, in
store and to arrive, for sale by

COLLINS, VOSE & CO.,

74 South St.

New York, June 1, 1850.

Railroad Iron.**1675** Tons, weighing about 61 lbs. per yard, 90
tons, weighing about 52 lbs. per yard, and
825 tons, weighing about 53½ lbs. per yard, of the lat-
est and most approved patterns of T rail, for sale by

BOORMAN, JOHNSTON & CO.,

119 Greenwich street.

New York, Feb. 25, 1850.

N.B.—B. J. & Co. are also prepared to take con-
tracts for English rails, delivered in any of the Atlan-
tic ports of the United States.**Railroad Iron.**THE UNDERSIGNED, HAVING made arrange-
ments abroad, are prepared to contract for the de-
livery of Foreign rails, of approved brands upon the
most favorable terms.They will also make contracts for American rails,
made at their Trenton works, from Andover Iron, in
whole or in part, as may be agreed upon.They are prepared to furnish Telegraph, Spring and
Market Wire; Braziers and Wire Rods; Rivets and
Merchant Bars to order, all made exclusively from An-
dover Iron. The attention of parties who require ironof the very best quality for special purposes, is respect-
fully invited.

COOPER & HEWITT,

17 Burling Slip, New York.

February 15, 1850.

Glendon Refined Iron.

Round Iron, Band Iron, Hoop Iron,

Square " Flat " Scroll "

Axles, Locomotive Tyres,

Manufactured at the Glendon Mills, East Boston, for

sale by GEORGE GARDNER & CO.,

5 Liberty Square, Boston, Mass.

Sept. 15, 1849.

**PATENT HAMMERED RAILROAD, SHIP &
BOAT SPIKES.**—The Albany Iron Workshave always on hand, of their own manufacture, a
large assortment of Railroad, Ship and Boat Spikes
from 2 to 12 inches in length, and of any form of head;From the excellence of the material always used in
their manufacture, and their very general use for rail-
roads and other purposes in this country, the manu-
facturers have no hesitation in warranting them fullyequal to the best spikes in market, both as to quality
and appearance. All orders addressed to the subscrib-
ers at the works will be promptly executed.

JOHN F. WINSLOW, Agent.

Albany Iron and Nail Works, Troy, N. Y.

The above Spikes may be had at factory prices, of
Erastus Corning & Co. Albany; Merrill & Co., New
York; E. Pratt & Br. & Co., Es. 2 more, Md.**LAP—WELDED****WROUGHT IRON TUBES**

FOR

TUBULAR BOILERS,

FROM ONE AND A QUARTER TO SEVEN

INCHES IN DIAMETER.

THE ONLY Tubes of the same quality and man-
ufacture as those so extensively used in England,
Scotland, France and Germany, for Locomotive, Ma-
rine and other Steam Engine Boilers.

THOMAS PROSSER & SON, Patentees,

28 Platt street, New York.

Railroad Iron.THE UNDERSIGNED ARE PREPARED TO
contract for the delivery of English Railroad Iron
of favorite brands, during the Spring. They also re-
ceive orders for the importation of Pig, Bar, Sheet, etc.

THOMAS B. SANDS & CO.,

22 South William street,

New York.

February 3, 1849.

Iron Store.THE Subscribers, having the selling agency of the
following named Rolling Mills, viz: Norristown,
Rough and Ready, Kensington, Triadelphia, Potts-
grove and Thorndale, can supply Railroad Companies,
Merchants and others, at the wholesale mill prices forbars of all sizes, sheets cut to order as large as 58 in.
diameter; Railroad Iron, domestic and foreign; Loco-
motive tire welded to given size; Chairs and Spikes;Iron for shafting, locomotive and general machinery
purposes; Cast, Shear, Blister and Spring Steel; Boil-
er rivets; Copper; Pig iron, etc., etc.

MORRIS, JONES & CO.,

Iron Merchants,

Schuylkill 7th and Market Sts., Philadelphia.

August 16, 1849. 1y33

Railroad Iron.THE MOUNT SAVAGE IRON WORKS, AL-
legany county, Maryland, having recently pas-
sed into the hands of new proprietors, are now prepar-
ed, with increased facilities, to execute orders for anyof the various patterns of Railroad Iron. Communi-
cations addressed to either of the subscribers will have
prompt attention. J. F. WINSLOW, President

Troy, N. Y.

ERASTUS CORNING, Albany,

WARREN DELANO, Jr., N. Y.

JOHN M. FORBES, Boston.

ENOCH PRATT, Baltimore, Md.

November 6, 1848.

Railroad Iron.THE SUBSCRIBERS ARE PREPARED TO
take orders for Railroad Iron to be made at theirPhoenix Iron Works, situated on the Schuylkill Riv-
er, near this city, and at their Safe Harbor Iron Works,
situated in Lancaster County, on the Susquehannariver; which two establishments are now turning out
upwards of 1800 tons of finished rails per month.Companies desirous of contracting will be promptly
supplied with rails of any required pattern, and of the
very best quality.

REEVES, BUCK & CO.

45 North Water St. Philadelphia,

March 15, 1849.

Monument Foundry.

A. & W. DENMEAD & SON,
Corner of North and Monument Sts.,—Baltimore,
HAVING THEIR

IRON FOUNDRY AND MACHINE SHOP

In complete operation, are prepared to execute faithfully and promptly, orders for
Locomotive or Stationary Steam Engines,
Woolen, Cotton, Flour, Rice, Sugar Grist, or Saw
Mills,
Slide, Hand or Chuck Lathes, and all kinds of
Machinery for cutting all kinds of Gearing.
Hydraulic, Tobacco and other Presses,
Car and Locomotive patent Ring Wheels, war-
ranted,
Bridge and Mill Castings of every description,
Gas and Water Pipes of all sizes, warranted,
Railroad Wheels with best fagotted axle, fur-
nished and fitted up for use, complete
Being provided with Heavy Lathes for Bor-
ing and Turning Screws, Cylinders, etc., we can
furnish them of any pitch, length or pattern.
Old Machinery Renewed or Repaired—and
Estimates for Work in any part of the United States
furnished at short notice.

June 6, 1849.

Iron Wire.

REFINED IRON WIRE OF ALL KINDS,
Card, Reed, Cotton-flyer, Annealed, Broom,
Buckle, and Spring Wire. Also all kinds of Round,
Flat or Oval Wire, best adapted to various machine
purposes, annealed and tempered, straightened and
cut any length, manufactured and sold by
ICHABOD WASHBURN.

Worcester, Mass., May 25, 1849.

American and Foreign Iron.**FOR SALE,**

300 Tons A 1, Iron Dale Foundry Iron.
100 " 1, " " " " " "
100 " 2, " " " " " "
100 " " Forge " " " "
400 " Wilkesbarre " " " "
100 " "Roaring Run" Foundry Iron.
300 " Fort " " " " "
50 " Catoctin " " " " "
250 " Chikiswalungo " " " "
50 " "Columbia" chilling iron, a very su-
perior article for car wheels.
75 " "Columbia" refined boiler blooms.
30 " 1 x 1/2 Silt iron.
50 " Best Penna. boiler iron.
50 " "Puddled" " " " "
50 " Bagnall & Sons refined bar iron.
50 " Common bar iron.

Locomotive and other boiler iron furnished to order.

GOODHUE & CO.,
New York. 64 South street

American Pig, Bloom and Boiler Iron.

HENRY THOMPSON & SON,
No 57 South Gay St., Baltimore, Md.,
Offer for sale, Hot Blast Charcoal Pig Iron made at
the Catoctin (Maryland), and Taylor (Virginia), Fur-
naces; Cold Blast Charcoal Pig Iron from the Cloer-
dale and Catawba, Va., Furnaces, suitable for Wheels
or Machinery requiring extra strength; also Boiler
and Flue Iron from the mills of Edge & Hillis in Del-
aware, and best quality Boiler Blooms made from Cold
Blast Pig Iron at the Shenandoah Works, Va. The
productions of the above establishments can always be
had at the lowest market price, for approved paper.
American Pig Iron of other brands, and Rolled and
Hammered Bar Iron furnished at lowest prices. Agents
for Watson's Perth Amboy Fire Bricks, and
Rich & Cos. New York Salamander Iron Chests.
Baltimore, June 14, 1849. 6 mos

Wheel, Forge and Foundry Iron.

LOCUST GROVE Wheel Iron of great strength
and superior chilling property.
Balt. Charcoal Forge Iron, from Patuxent, Curtis
Creek and Gunpowder Furnaces.
Elkridge Foundry Iron, of superior strength and
softness. Anthracite and Charcoal Iron from Penn-
sylvania and Virginia. Gas and Water Pipes, Lamp
Posts from Elkridge furnaces.

LEMMON & GLENN,
62 Buchanan's Wharf, Baltimore.

Iron.

THE SUBSCRIBERS having resumed the agency
of the New-Jersey Iron Company, are prepared
to execute orders for the different kinds and sizes of
Iron usually made at the works of the company, and
offer for sale on advantageous terms.

150 tons No. 1 Boonton Foundry Pig Iron.
100 " No. 2 do. do. do.
300 " Nos. 2 & 3 Forge do. do.
100 " No. 2 Glendon do. do.
140 " Nos. 2 & 3 Lehigh Crane do do.
100 " No. 1 Pompton Charcoal do.
100 " New-Jersey Blooms
50 " New-Jersey Faggotting Iron, for shafts
Best Bars, 1/2 to 4 inch by 1/2 to 1 inch thick.
Do do Rounds and Squares, 1/2 to 3 inch.
Rounds and Squares, 3-16 to 1 inch.
Half Rounds, 1/2 to 1 in. Ovals & Half Ovals 1/2 to 1 1/2 in.
Bands, 1 1/2 to 4 inch. Hoops, 1/2 to 2 inch.
Trunk Hoops, 1/2 to 1 1/2 in. Horse Shoe & Nut Iron.
Nail Plates. Railroad Spikes.

DUDLEY B. FULLER & Co., 139 Greenwich-
st. and 85 Broad-st.

WILLIAM JESSOP & SONS' CELEBRATED CAST-STEEL.

The subscribers have on hand, and are constantly re-
ceiving from their manufactory,

PARK WORKS, SHEFFIELD,

Double Refined Cast Steel—square, flat and octagon.
Best warranted Cast Steel—square, flat and octagon.
Best double and single Shear Steel—warranted.
Machinery Steel—round.
Best and 2d gy. Sheet Steel—for saws and other pur-
poses.

German Steel—flat and square, "W. I. & S." "Eagle"
and "Goat" stamps.

Genuine "Sykes," L Blister Steel.

Best English Blister Steel, etc., etc., etc.

All of which are offered for sale on the most favora-
ble terms by **WM. JESSOP & SONS,**

91 John street, New York.

Also by their Agents—

Curtis & Hand, 47 Commerce street, Philadelphia.
Alex'r Fullerton & Co., 119 Milk street, Boston.
Stickney & Beatty, South Charles street, Baltimore.
—May 6, 1848.

JOHNSON, CAMMELL & Co's Celebrated Cast Steel,

AND
ENGINEERING AND MACHINE FILES,
which for quality and adaptation to mechanical uses,
have been proved superior to any in the United States.
Every description of square, octagon, flat and round
cast steel, sheet, shovel and railway spring steel, best
double and single shear steel, German steel, flat and
square, goat stamps, etc. Saw and file steel, and steel
to order for any purposes, manufactured at their Cy-
clops Steel Works Sheffield.

JOHNSON, CAMMELL & CO.,
100 William St., New York.

November 23 1849.

Railroad Iron.

OF ANY PATTERN AND WEIGHT,
Of a Favorite Brand,

And deliverable in Bond, or Duty paid, at any Port of
the U. S., contracted for on favorable terms, by

CHARLES ILLIUS,
20 Beaver St., New York.

Pig and other Iron also contracted for. Sole Agent
for "Baxter's Machine and Burning Oil"—particu-
larly adapted for "Railroads" and other Machinery—
Preferred to Sperm by the many now using it, and 25
per cent. cheaper.

CUT NAILS OF BEST QUALITY, BAR IRON
(including Flat Rails) manufactured and for sale
by

FISHER, MORGAN & CO.,
75 N. Water St., Philadelphia.

Ogden & Martin's ROSENDALE CEMENT.

WE are prepared to enter into arrangements for
supplying our Cement for public works or other
purposes. We warrant the cement equal in every re-
spect to any manufactured in this country. It attains
a great degree of hardness, sets immediately under
water, and is a superior article for masonry coming in
contact with water, or requiring great strength.

For sale in tight barrels, well papered, at their office
by **OGDEN & MARTIN,** 104 Wall st.
February 16, 1850.

The above cement is used in most of the fortifica-
tions building by government.

To Steam Engine Builders.

THE Undersigned offer for sale, at less than half its
cost, the following new machinery, calculated for
an engine of 62 inches cylinder and 10 feet stroke, viz.

- 2 Wrought Iron Cranks, 60 inches from centre to
centre.
- 1 Do. do. Connecting Rod Strap.
- 2 Do. do. Crank Pins.
- 1 Eccentric Strap.
- 1 Diagonal Link with Brasses.
- 1 Cast Iron Lever Beam (forked).

The above machinery was made at the West Point
Foundry for the U. S. Steamer Missouri, without re-
gard to expense, is all finished complete for putting to-
gether, and has never been used. Drawings of the
cranks can be seen on application to

HENRY THOMPSON & SON,
No. 57 South Gay St., Baltimore, Md.

Sept. 12, 1849.

8,000 Tons Railroad Iron.

THE OHIO AND PENNSYLVANIA RAIL-
ROAD CO. wish to contract for eight thousand
tons of Railroad Iron, for the eastern division of their
road, extending westward from Pittsburgh. Three
thousand tons to be delivered on the Ohio river at
Pittsburgh and Beaver, before the close of canal naviga-
tion in the present year, 1850; and the remainder
in the spring of next year. The rails are to be of the
H pattern, in lengths of 20 feet, and are to weigh 60
lbs. per lineal yard. They are to be subject to the in-
spection of Solomon W. Roberts, Chief Engineer.—
For further particulars address the President of the
Company at Pittsburgh.

By order of the Board of Directors.

WM. ROBINSON, Jr., President.

S. S. Keyser & Co., IRON WAREHOUSE,

Corner of South and Pratt Streets,
BALTIMORE, MD.

Selling Agents for the Rough and Ready Bar Iron
and Elk Boiler and Flue Iron Rolling Mills, Sarah
and Taylor Furnaces, and Wrightsville Hollow Ware
Foundry, and Dealers in Bar and Sheet Iron, and
Cast, Sheer, German, Blister, Spring and Electro-
steel, etc., etc.

Smith & Tyson,

GENERAL COMMISSION MERCHANTS,

No. 25 South Charles St., Baltimore, Md.

AGENTS for the Celebrated Columbia Pig Iron,
suitable for Car Wheels and Chilled Rolls.

Columbia refined Charcoal Blooms; Refined Char-
coal Juniata Billet Iron for Wire; Refined Iron for
Bridging, of great strength; Cut Nails, Spikes, and
Brads; Railroad Spikes and Wrought Chairs. 22tf

To Railroad Companies and Contractors.

FOR SALE.—Two Locomotive Engines and Ten-
ders, at present in use on the Beaver Meadow
Railroad, being too light for their coal trains, but well
calculated for either gravel or light passenger trains.

They weigh, in running order, about 8 tons each—
having one pair of driving wheels 4 feet diameter, 4
truck wheels 30 inches diameter, with cylinders 10 in.
diameter, and 18 inches stroke of piston. Tenders on
4 wheels. Address **JAMES ROWLAND,**

Pres't. Beaver Meadow Railroad & Coal Co.,

Philadelphia.

or, **L. CHAMBERLAIN,** Sec'y,

at Beaver Meadow, Pa.

May 19, 1849. 20tf

Railroad Instruments.

THEODOLITES, TRANSIT COMPASSES,
and Levels, with Fraunhoffer's Munich Glasses,
Surveyor's Compasses, Chains, Drawing Instru-
ments, Barometers, etc., all of the best quality and
workmanship, for sale at unusually low prices, by

E. & G. W. BLUNT,

No. 179 Water St., cor. Burling Slip.
New York, May 19, 1849.

Rosendale Cement.

THE NEWARK AND ROSENDALE LIME
AND CEMENT CO. are now manufacturing at
their works in NEWARK, N. J., and Ulster county,
N. Y., a very superior article of *Hydraulic Cement*—
also Lime Calcine Plaster, etc. Contractors and deal-
ers will find it to their advantage to call or make ap-
plication before purchasing elsewhere. All communi-
cations addressed to the subscriber, at Newark, N. J.,
will be punctually attended to.

ly*15 **HENRY WILDE,** Secretary.

Patent India Rubber Steam Packing.

THIS article, made by the subscriber, who alone is authorised to make it, is warranted to stand as high a degree of heat as any that has been or can be made by any person—and is the article which has made the reputation of India Rubber Steam Packing and the demand therefor. A large assortment of all thick nesses requisite for any description of engines, steam pipes, valves, etc., constantly on hand and for sale by the manufacturer and patentee, who will give every information regarding its properties, mode of use, etc. at the warehouse.

JOHN GREACHEN, JR.,
98 Broadway, opposite Trinity Church.
New York, October, 1849.

Passenger Car Linings.

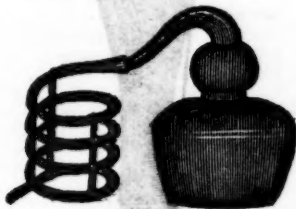
THE Advertiser continues to make to order the Enamelled Car Linings which have been so highly approved the last three years, and are now exclusively used by all the Northern Railroads. No pains are spared to get out new styles, and adapt them to the tastes of every consumer.

Orders addressed to CHARLES STODDER, No. 75 Kilby street, Boston, will have prompt attention.
March 23, 1850. 2m

CAUTION.

RAILROAD COMPANIES and others are hereby cautioned against using or vending our improvement for easing the lateral motion as applied on Railroad Cars. Letters Patent having been granted to us in 1841, any party or parties so making or using said improvement without license from us will be proceeded against according to law.

DAVENPORT & BRIDGES.



P. H. Griffin,

Corner of Steuben and James Sts. Albany, N.Y.
CONTINUES to manufacture copper flues for locomotive boilers, brewers' coppers, stills, tanner heaters, etc. Copper work in general, at the shortest notice. He has constantly on hand brass cocks, brass valves, copper pumps of every variety.
Orders promptly attended to. 1y14

FOWLER M. RAY'S Patent India-rubber Railroad CAR SPRING.

New York and Erie Railroad Shops.
Piermont, March 26, 1850.

This will certify that from practical experience in the use of Fowler M. Ray's India rubber Car Springs, I believe them to be far superior to any others now in use.

I have never known them to be affected by any change of temperature, as other Rubber Springs have been affected on this road.

I am at the present time repairing a Passenger Car that Mr. Ray and myself mounted with his springs about two years and eight months since.

The springs are at the present time as perfect, to all appearances, as when first applied to the car.

Respectfully yours,

HORACE B. GARDNER,
Foreman of the Car Shops.

Supt. Office N.Y. & H. R.R.,
New York, March 8, 1850.

This is to certify that we have used the Rubber Springs manufactured by Mr. F. M. Ray for the past twenty months, "both for Passenger and Freight Car Springs and Bumpers, and of different sizes," and have in every case given entire satisfaction, and I consider them the best spring now in use.

M. SLOAT, Supt.

Harlem R.R. Depot,
New York, March 7, 1850.

This is to certify that we have used Mr. F. M. Ray's India-rubber Springs for over eighteen months, and find them to be easy and durable, and recommend them to railroad companies as being superior to anything we have tried.

J. M. SMART,
Foreman at 42d St. Depot.

Office New Jersey Railroad Co.,
Jersey City, March 8, 1850.

FOWLER M. RAY, Esq.,

Dear Sir: In answer to your enquiries respecting the operation of the Vulcanised Rubber Springs, purchased by our company from you some two years since, I reply that they are superior to any spring in use, (that I have either seen or heard of).

The improved form of your spring, consisting of a solid piece of vulcanised rubber with bands on the outside, is far superior to your first form, consisting of disks of rubber with metallic plates interposed.

The last named form was tried, if you recollect, at a much earlier period; and then was replaced by your last form.

I have no hesitation in saying that your springs have given entire satisfaction, and most cheerfully recommend them to railroad companies throughout the country for the following reasons:

1st. The cost is 30 per cent. less.

2d. Saving of weight on each car of 8 wheels from 700 to 800 lbs.

3d. Less care and attention is required, as they are not liable to get out of repair.

4th. A great saving is secured in the wear and tear of the cars and rails from their great elasticity.

5th. The freedom from noise.

6th. There is greater safety in case of accident, as they cannot be broken.

7th. The comfort of passengers is enhanced sufficiently to pay the expense, waiving all the other reasons that I have given.

Should this fail to satisfy any person enquiring, you are at liberty to refer to me, No. 150 Washington St., Jersey City.

Yours respectfully,

T. L. SMITH, Supt.

New York, March 11, 1850.

I have used the Patent India-rubber Spring purchased of Mr. Ray, upon the cars of the New York and New Haven Railroad, and have found them efficient and economical; and when applied to the axles and draw springs, believe them to be quite equal to any in use. I have found a combination of these springs with a steel spring under the transom beam a very satisfactory arrangement, and am now using this plan in all new cars.

Yours respectfully,

ROBERT SCHUYLER.

February 25, 1850.

From practical observation of the use of the India-rubber Car Springs, manufactured and sold by your company, we are entirely satisfied in their application, and do not hesitate to recommend them as elastic, durable, requiring no repairs for years, and retaining their consistency during all extremes of weather. We have applied them for the past two years, and consider them superior for all railroad purposes.

Yours truly,

OSGOOD BRADLEY, Car Builder, Worcester.
T. & C. WASON, do. Springfield.
DEAN, PACKARD & MILLS, do. do.
DAVENPORT & BRIDGES, do. Cambridgeport.

Office of the New Jersey Railroad Co.,
Jersey City, March 7, 1850.

This is to certify that we have had Mr. F. M. Ray's India-rubber Springs in constant use under our cars, and as Bumper Springs for upwards of two years, and they have in every way given perfect satisfaction.

The present form of spring we deem far superior to the form of Disk, having used both forms, although we have none of those made in Disks at present in use.

We take pleasure in recommending these springs to all railroad companies.

J. P. JACKSON, Vice Prest.
New Jersey Railroad and Trans. Co.

Roxbury, February 28, 1850.

In compliance with your request, I take great pleasure in stating the result of my experience in the use of "Ray's Patented Vulcanised India-rubber Car and Engine Springs." We have used them nearly two years, and never had one fail in any way. The cold weather does not affect them, as it has other rubber springs we have used.

With sixteen years' experience as superintendent of machinery on the Boston and Providence railroad, I take pleasure in saying that your springs are the best we ever used, or I ever saw used elsewhere. We have 20 cars rigged with them, of which I can say that the springs are as good now as when first applied. I put 24 lbs. of the rubber under the forward end of one of our heaviest engines, taking off 250 lbs. of steel springs—it has been in use 18 months, and is in as good condition now as when first put under the engine.

Very respectfully yours,

GEO. S. GRIGGS,

Supt. of Machinery, Boston and Prov. R.R.

Fall River, February 2, 1850.

In answer to yours of the 10th ult. I would say that this company has for some 10 or 12 months past been using "Ray's India-rubber Springs." We have applied them to both passenger and freight cars with uniform success. They have invariably preserved their elasticity and consistency through all the extremes of weather; and we are now applying them whenever the steel spring fails. I am well satisfied that they are particularly adapted for railroad purposes.

Very respectfully yours,

GEO. HAVEN,

Supt. Fall River Railroad.

Jersey City, March 3, 1850.

This is to certify that the present form of Mr. F. M. Ray's India-rubber Car Spring I consider far superior to the form of Disk, having used both forms.

I take pleasure in recommending these springs to all railroad companies.

DAVID H. BAKER,

Foreman of Car Shop of N.J. R.R. & Trans. Co.

Boston, March 5, 1850.

In answer to your enquiry about India-rubber Springs, I have to say that we have used them to a considerable extent on both freight and passenger cars, and also on several of our tenders; and I am very well satisfied that they answer all the purposes for which they are intended. I believe the India-rubber will soon supersede all other springs for cars and tenders.

Yours truly,

S. M. FELTON,

Supt. Fitchburg Railroad.

Old Colony Railroad Office,

Boston, March 6, 1850.

EDWARD CRANE, Esq.,

President New England Car Co.,

Dear Sir: In compliance with your request I would state that the Old Colony Railroad Company have had in use upon their road, India-rubber Springs furnished by your company, for more than eighteen months past, during which time they have been extensively used under Passenger and Freight Cars, Locomotive Tenders, and for Drawer and Bumping Springs, with the most perfect success. The elasticity and consistency of the Rubber has never been unfavorably affected by either extremes of heat or cold—and from the experience which we have had in the use of Rubber Springs, I think them well adapted for railroad purposes—and therefore we have for some months past used Rubber almost exclusively, in all places where springs are required.

Respectfully yours, etc.,

JAS. H. MOORE,

Supt. O. C. Road.

Troy, February 27, 1850.

We have been using your India-rubber Car Springs for nearly two years—and we take pleasure in saying that in our opinion the rubber has to a certain extent already, and may eventually entirely supersede all other Springs for Railroad Car purposes. We now use it entirely for Draw Springs and Bumpers, considering it better and lighter than steel.

During our two years' experience in the use of it, we have not known any to lose their elasticity, or fail in any way; and we cheerfully recommend the rubber for railroad car springs.

Very respectfully,

EATON, GILBERT & CO.

To Practical Machinists.

AN excellent opportunity now occurs to a practical Machinist, of WELL ESTABLISHED REPUTATION, and some capital, to engage extensively in the STEAM ENGINE, BOILER AND FOUNDRY BUSINESS.

An establishment is now ready for business, ample in all its details, including extensive wharf room, for any sized steamboats, and from its position, if properly conducted, will doubtless command a large share of business.

A practical Machinist, as a partner is required, to conduct the whole establishment; and only those FULLY COMPETENT need apply. Address (post paid) "MACHINE CO.," Box No. 741, Philadelphia, Pa. 1m14

Etna Safety Fuse.

THIS superior article for igniting the charge in wet or dry blasting, made with DUPONT'S best powder, is kept for sale at the office and depot of

REYNOLDS & BROTHER,

Sole Manufacturers,

No. 85 Liberty St.

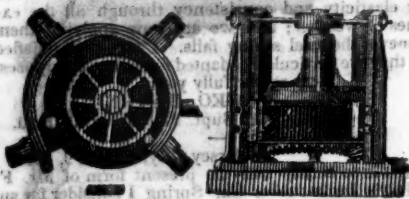
NEW YORK.

And in the principal cities and towns in the U. States. The Premium of the AMERICAN INSTITUTE was awarded to the Etna Safety Fuse at the late Fair held in this city.

November 3, 1849.

MACHINERY.

Henry Burden's Patent Revolving Shingling Machine.



THE Subscriber having recently purchased the right of this machine for the United States, now offers to make transfers of the right to run said machine, or sell to those who may be desirous to purchase the right for one or more of the States.

This machine is now in successful operation in ten or twelve iron works in and about the vicinity of Pittsburgh, also at Phoenixville and Reading, Pa., Covington Iron Works, Md., Troy Rolling Mills, and Troy Iron and Nail Factory, Troy, N. Y., where it has given universal satisfaction.

Its advantages over the ordinary Forge Hammer are numerous: considerable saving in first cost; saving in power; the entire saving of shingler's, or hammerman's wages, as no attendance whatever is necessary, it being entirely self-acting; saving in time from the quantity of work done, as one machine is capable of working the iron from sixty puddling furnaces; saving of waste, as nothing but the scoria is thrown off, and that most effectually; saving of staffs, as none are used or required. The time required to furnish a bloom being only about six seconds, the scoria has no time to set, consequently is got rid of much easier than when allowed to congeal as under the hammer. The iron being discharged from the machine so hot, rolls better and is much easier on the rollers and machinery. The bars roll sounder, and are much better finished. The subscriber feels confident that persons who will examine for themselves the machinery in operation, will find it possesses more advantages than have been enumerated. For further particulars address the subscriber at Troy, N. Y. P. A. BURDEN.

Railroad Spikes and Wrought Iron Fastenings.

THE TROY IRON AND NAIL FACTORY, exclusive owner of all Henry Burden's Patented Machinery for making Spikes, have facilities for manufacturing large quantities upon short notice, and of a quality unsurpassed.

Wrought Iron Chairs, Clamps, Keys and Bolts for Railroad fastenings, also made to order. A full assortment of Ship and Boat Spikes always on hand.

All orders addressed to the Agent at the Factory will receive immediate attention.

P. A. BURDEN, Agent,
Troy Iron and Nail Factory, Troy, N. Y.

RAILROAD WHEELS.

CHILLED RAILROAD WHEELS.—THE UNDERSIGNED are now prepared to manufacture their Improved Corrugated Car Wheels, or Wheels with any form of spokes or discs, by a new process which prevents all strain on the metal, such as is produced in all other chilled wheels, by the manner of casting and cooling. By this new method of manufacture, the hubs of all kinds of wheels may be made whole—that is, without dividing them into sections—thus rendering the expense of banding unnecessary; and the wheels subjected to this process will be much stronger than those of the same size and weight, when made in the ordinary way.

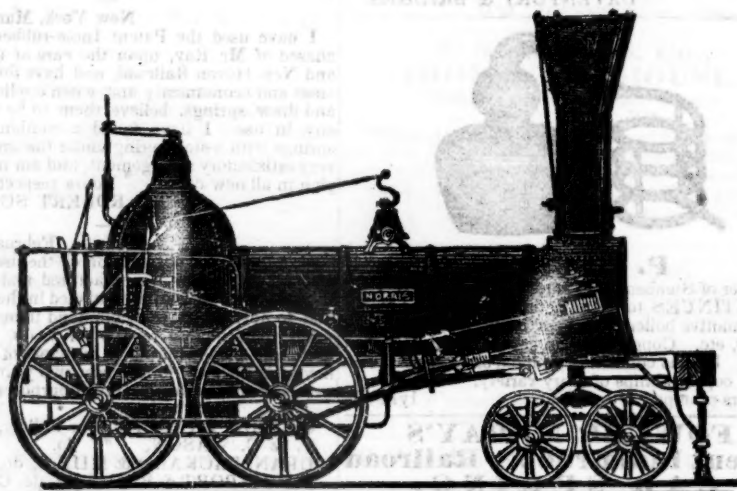
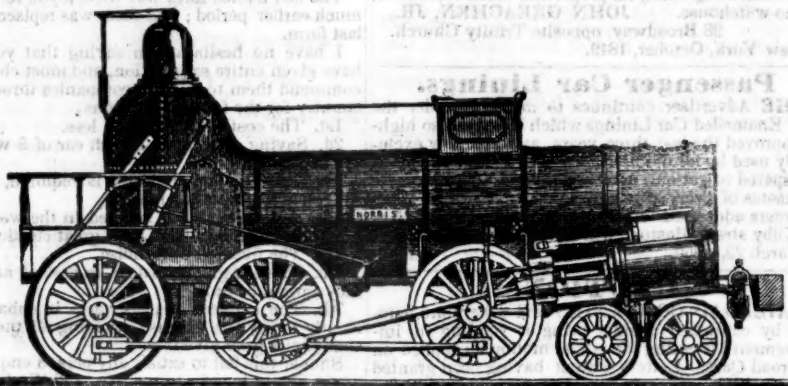
A. WHITNEY & SON,
Willow St., below 13th,
Philadelphia, Pa.

CHILLED RAILROAD WHEELS.—THE UNDERSIGNED, the Original Inventor of the Plate Wheel with solid hub, is prepared to execute all orders for the same, promptly and faithfully, and solicits a share of the patronage for those kind of wheels which are now so much preferred, and which he originally produced after a large expenditure of time and money.

A. TIERS,
Point Pleasant Foundry.

He also offers to furnish Rolling Mill Castings, and other Mill Gearing, with promptness, having, he believes, the largest stock of such patterns to be found in the country.

Kensington, Philadelphia Co.,
March 12, 1848.

NORRIS' LOCOMOTIVE WORKS.
BUSHHILL, SCHUYLKILL SIXTH-ST., PHILADELPHIA.

THE UNDERSIGNED Manufacture to order Locomotive Steam Engines of any plan or size. Their shops being enlarged, and their arrangements considerably extended to facilitate the speedy execution of work in this branch, they can offer to Railway Companies unusual advantages for prompt delivery of Machinery of superior workmanship and finish.

Connected with the Locomotive business, they are also prepared to furnish, at short notice, Chilled Wheels for Cars of superior quality.

Wrought Iron Tyres made of any required size—the exact diameter of the Wheel Centre, being given, the Tyres are made to fit on same without the necessity of turning out inside.

Iron and Brass castings, Axles, etc., fitted up complete with Trucks or otherwise.

NORRIS, BROTHERS

LAWRENCE'S ROSENDALE HYDRAULIC Cement. This Cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floors, and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight papered barrels, by

JOHN W. LAWRENCE,

142 Front-street, New York.

Orders for the above will be received and promptly attended to at this office.

32 1y.

PATENT MACHINE MADE HORSE-SHOES.

The Troy Iron and Nail Factory have always on hand a general assortment of Horse Shoes, made from Refined American Iron.

Four sizes being made, it will be well for those ordering to remember that the size of the shoe increases as the numbers—No. 1 being the smallest.

P. A. BURDEN, Agent,
Troy Iron and Nail Factory, Troy, N. Y.

COLUMBUS, OHIO,
Railroad Car Manufactory.
RIDGWAYS & KIMBALL,

HAVE established at this central point, the manufacture of Passenger, Freight, Gravel and Hand Cars for Railroads, and assure all Western Railroad Companies that it will be their constant aim to procure the best materials and workmen, and to turn out the best kind of work at fair prices. Specimens may be seen on the Columbus and Xenia Railroad. The patronage of Railroad Companies is respectfully solicited.

1y8

To Inventors and Patentees.

OWEN G WARREN, ARCHITECT, Has had many years' experience as Agent for obtaining Patents, both in this country and Europe, and will transact such business promptly and reasonably. Persons at a distance can have their business done by correspondence—without the necessity of visiting this city or Washington. Office No. 94 Merchants Exchange, Wall st., corner of Hanover st., up stairs.

1y8

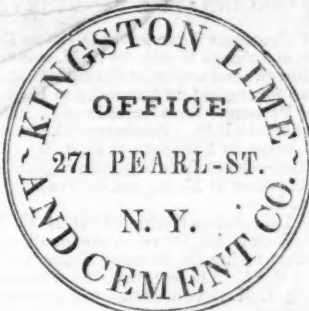
MR. HALE:—"The New England Car Co., having been engaged for the last six months in introducing the Vulcanized India-rubber Car Springs upon the different railroads in this and other states, and having in particular introduced it upon the Boston and Worcester railroad with perfect success, were much gratified to find, by your paper of this morning, that the article had given satisfaction to the president of that corporation, and the terms of just commendation in which you were pleased to speak of it. But their gratification was scarcely equalled by their surprise, when, or arriving at the close of your paragraph, they found the results of all their labors attributed to a foreign source, with which the New England Car Co. has no connection. The material used on the Boston and Worcester railroad, and all the other railroads in this country, where any preparation of India-rubber has been successfully applied, is entirely an American invention, patented in the year 1844 to Charles Goodyear, of New Haven, Conn., and the application of it to this purpose and the form in which it is applied are the invention of F. M. Ray of New York. The only material now in use, and so far as has yet appeared, the only preparation of India rubber capable of answering the purpose, has been furnished under these patents by the New England Car Company, manufactured under the immediate inspection of their own agent. If any other should be produced, the right to use it would depend upon the question of its interference with Mr. Goodyear's patent. The New England Car Company have their place of business in this city at No. 99 State street, and are prepared to answer all orders for the Vulcanized India rubber Car Springs, of the same quality and of the same manufacture as those which they have already placed on your road, and most to the other roads terminating in this city."

And yet Mr. Kneivt is using these experiments made upon the Springs of the Car Company to induce the public to purchase his springs, and is attempting to impose upon them the belief that the springs used were furnished by him! We ask whether such a course is honorable, or entitles his statements to much consideration from the public.

The above Springs are for sale 98 Broadway, New York, and 99 State street, Boston.

EDWARD CRANE Agent, Boston.
F. M. RAY, Agent, New York.
Boston, May 8, 1849.

Hydraulic Cement.



HYDRAULIC CEMENT, OF BEST QUALITY, manufactured at their works, for sale in lots to suit purchasers.

Also, Ground Lime, a superior article for Builders.
ISAAC FRYER, Sec'y.
January 19, 1850.

Engine and Car Works, PORTLAND, MAINE.

THE PORTLAND COMPANY, Incorporated August 8th, 1846, with a capital of \$250,000, have erected their extensive Works upon the deep water of Portland Harbor, and receive and transport, to and from their works direct, to and from vessels of any class.

They now manufacture to order, and deliver upon the Railroads running in each direction from the city, or on shipboard as wanted, Locomotive, Stationary, or Steam Boat Engines; Passenger, Mail, Freight, Earth and Hand Cars; Railway Frogs, Switches, Chairs and Castings; and every other description of Machinery.

HORACE FELTON,
Superintendent.

JAMES C. CHURCHILL,
General Agent and Clerk.

RAILROADS.

EASTERN RAILROAD.

WINTER ARRANGEMENT.

On and after Monday, October 8, 1849, trains leave Boston daily (Sundays excepted);
For Lynn, 7, 8 $\frac{1}{2}$, 10 a.m., 12 $\frac{1}{2}$, 2 $\frac{1}{2}$, 4, 4 $\frac{1}{2}$, 6 $\frac{1}{2}$ p.m.
Salem, 7, 8 $\frac{1}{2}$ 10 a.m., 12 $\frac{1}{2}$, 2 $\frac{1}{2}$, 4, 4 $\frac{1}{2}$, 6 $\frac{1}{2}$ p.m.
Manchester and Gloucester, 10 a.m., 4 p.m.
Newburyport, 7 a.m., 12 $\frac{1}{2}$, 2 $\frac{1}{2}$ 4 $\frac{1}{2}$ p.m.
Portsmouth, 7 a.m., 2 $\frac{1}{2}$, 4 $\frac{1}{2}$ p.m.
Portland, Me., 7 a.m., 2 $\frac{1}{2}$ p.m.

And for Boston,
From Portland, 8 $\frac{1}{2}$ a.m., 4 p.m.
Portsmouth, 7, 10 $\frac{1}{2}$ a.m., 6 $\frac{1}{2}$ p.m.
Newburyport, 7 $\frac{1}{2}$, 11 $\frac{1}{2}$ a.m., 3 $\frac{1}{2}$ 7 $\frac{1}{2}$ p.m.
Gloucester, 7 $\frac{1}{2}$ a.m., 1 $\frac{1}{2}$ p.m.
Manchester, 8 a.m., 2 p.m.
Lynn, 7 $\frac{1}{2}$, 8 $\frac{1}{2}$ a.m., 9 $\frac{1}{2}$, 10 $\frac{1}{2}$ a.m., 12 55*, 2 $\frac{1}{2}$ 4 $\frac{1}{2}$ * 8 $\frac{1}{2}$ * p.m.
Salem, 7 $\frac{1}{2}$, 8 $\frac{1}{2}$ a.m., 9*, 10 $\frac{1}{2}$ a.m., 12 40*, 2 $\frac{1}{2}$ 4 $\frac{1}{2}$ * 8 $\frac{1}{2}$ * p.m.

*Or on their arrival from the East.
Freight trains each way daily. Office 17 Merchants' Row, Boston.
Feb. 3. JOHN KINSMAN, Superintendent.

ALBANY AND BUFFALO RAILROADS.

Four Trains daily, Sundays excepted, viz:
Leave Albany, 6 a.m., 9 a.m., 2 p.m., 7 p.m.
Reach Buffalo, 15 hours, 18 hours, 23 hours, 18 hours.
Arrive from Buffalo, 7 p.m., 2 $\frac{1}{2}$ a.m., 12 $\frac{1}{2}$ m., 3 $\frac{1}{2}$ p.m.
Passengers by the Express Train reach Buffalo from New York, and New York from Buffalo, in 24 hours. The Isaac Newton and Oregon connect at Albany with this Train. Baggage cars, with careful baggage masters, run through with all the trains.

For Schenectady, Saratoga Springs & Whitehall, Leave Albany at 7 a.m. and 2 p.m. For Schenectady only at 6, 7 and 9 a.m. and 12 $\frac{1}{2}$, 2 and 7 p.m. For Erie Canal packets at 7 a.m. and 7 p.m. By Plank Road from Schenectady to Saratoga at all hours by stages, etc.

The Eastern Trains leave Albany at 7 a.m. and 3 p.m. The wagons of the company take baggage free between railroads and steamboats at Albany.

E. FOSTER, Jr., Sec'y
Albany and Schenectady Railroad Co.
Albany, August, 1849.

BOSTON AND MAINE RAILROAD.

Winter Arrangement, 1850.

Outward Trains from Boston
For Portland at 7 a.m. and 2 $\frac{1}{2}$ p.m.
For Rochester at 7 a.m., 2 $\frac{1}{2}$ p.m.
For Great Falls at 7 a.m., 2 $\frac{1}{2}$, 3 $\frac{1}{2}$ p.m.
For Haverhill at 7 and 9 $\frac{1}{2}$ a.m., 2 $\frac{1}{2}$, 3 $\frac{1}{2}$, 5 $\frac{1}{2}$ p.m.
For Lawrence 7, 7 $\frac{1}{2}$, 9 $\frac{1}{2}$ a.m., 12m. 2 $\frac{1}{2}$, 3 $\frac{1}{2}$, 4 $\frac{1}{2}$ 5 $\frac{1}{2}$ p.m.
For Reading 7, 9 $\frac{1}{2}$ a.m., 12m. 2 $\frac{1}{2}$, 3 $\frac{1}{2}$, 4 $\frac{1}{2}$, 5 $\frac{1}{2}$, 7 $\frac{1}{2}$, 9 $\frac{1}{2}$ p.m.
For Medford 7 $\frac{1}{2}$, 9 $\frac{1}{2}$ a.m., 12 $\frac{1}{2}$, 2 $\frac{1}{2}$, 5, 6 $\frac{1}{2}$, 9 $\frac{1}{2}$ p.m.
The Station in Boston is on Haymarket Square.
CHAS. MINOT, Super't.

January 10, 1850.

NEW YORK AND HARLEM RAILROAD. NEW ARRANGEMENT.

On and after Wednesday, October 17th, 1849, the Cars will run as follows, (Sundays excepted) until further notice:

Trains will leave the City Hall, New York, for—
Harlem and Morrisania at 6 $\frac{1}{2}$, 8, 10, 11, 12 a.m., 2, 3 $\frac{1}{2}$, 4, 5, 6 $\frac{1}{2}$ p.m.
New Village, at 8 $\frac{1}{2}$, 10, 12 a.m., 3 $\frac{1}{2}$, 5, 6 $\frac{1}{2}$ p.m.
Fordham and Williams' Bridge, at 8 $\frac{1}{2}$, 10, 12 a.m., 2 $\frac{1}{2}$, 3 $\frac{1}{2}$, 5, 6 $\frac{1}{2}$ p.m.
Hunt's Bridge, Underhill's and Hart's Corners, at 8 $\frac{1}{2}$, 10 a.m., 3 $\frac{1}{2}$, 5 p.m.
Tuckahoe and White Plains, at 8 $\frac{1}{2}$, 10 a.m., 2 $\frac{1}{2}$, 3 $\frac{1}{2}$, 5 p.m.

Pleasantville, New Castle, Bedford, Mechanicsville, Purdy's, Croton Falls, and intermediate stations, on signal, 8 $\frac{1}{2}$ a.m., 2 $\frac{1}{2}$, 3 $\frac{1}{2}$ p.m.

Brewster's, Townner's, Patterson, Paulding's, South Dover, Dover Furnace, and Dover Plains, 8 $\frac{1}{2}$ a.m., 2 $\frac{1}{2}$ p.m.

NOTICE—Passengers are reminded of the great danger of standing upon the platform of the cars, and hereby notified that the practice is contrary to the rules of the Company, and that they do not admit any responsibility for injury sustained by any passenger upon the platforms, in case of accident.

Returning to New York will leave

Harlem and Morrisiana at 6 08, 7 $\frac{1}{2}$, 8 37, 9, 10 6, 12 a.m., 1 43, 3 07, 3 $\frac{1}{2}$, 5, 5 47 p.m.
New Village, at 5 58, 8 27, 9 56 a.m., 1 33, 2 57, 5 36 p.m.

Fordham and William's Bridge at 5 $\frac{1}{2}$, 8 14, 9 43, 10 57 a.m., 1 20, 2 44, 5 24 p.m.

Hunt's Bridge at 8 04, 9 33 a.m., 2 34, 5 16 p.m. On signal.

Underhill's, at 7 56, 9 23 a.m., 2 26, 5 10 p.m. On signal.

Tuckahoe at 7 53, 9 18, 10 40 a.m., 2 23, 5 08 p.m.
Hart's Corners at 7 38, 9 03 a.m., 2 08, 4 54 p.m.—On signal.

White Plains at 7 $\frac{1}{2}$, 8 55, 10 20 a.m., 2, 4 47 p.m.
Davis' Brook at 8 40, 10 11 a.m., On signal. 4 39 p.m. On signal.

Unionville, 8 27, 10 11 a.m. On signal. 4 29 p.m.—On signal.

Pleasantville at 8 20, 9 56 a.m., 4 24 p.m.
Champanqua, at 8 10, 9 50 a.m. On signal. 4 18 p.m. On signal.

New Castle, at 7 56, 9 38 a.m., 4 07 p.m.
Bedford at 7 46, 9 32 a.m., 4 02 p.m.

Mechanicsville at 7 36, 9 22 a.m., 3 52 p.m.
Golden's Bridge, 7 28, 9 17 a.m. On signal, 3 47 p.m. On signal.

Purdy's at 7 20, 9 09 a.m., 3 39 p.m.
Croton Falls, at 7 $\frac{1}{2}$, 9 04 a.m., 3 34 p.m.

Brewster's, at 8 50 a.m., 3 20 p.m.
Townner's, at 8 35 a.m., 3 05 p.m.

Paterson, at 8 27 a.m., 2 57 p.m.
Paulding's, at 8 17 a.m., 2 47 p.m.

South Dover, 8 02 a.m., 2 32 p.m.
Dover Furnace, 7 55 a.m., 2 25 p.m.

Dover Plains, at 7 45 a.m., 2 15 p.m.

The trains for Harlem and Morrisiana leaving City Hall at 6 $\frac{1}{2}$, 8, 10, 11, 12, 2, 4 and 6 $\frac{1}{2}$, returning from Morrisiana and Harlem at 6 08, 7 $\frac{1}{2}$, 9, 12, 1 43, 3 07, 3 $\frac{1}{2}$ and 5 o'clock, will land and receive passengers at 27th 42d, 51st, 61st, 79th, 86th, 109th, 115th, 125th and 132d streets.

The Dover Plains train from New York at 2 $\frac{1}{2}$ p.m., returning leaving Dover Plains at 7 $\frac{1}{2}$ a.m., will not stop between White Plains and New York, (except at Tuckahoe, Williams' Bridge and Fordham), unless to leave passengers coming from above Croton Falls.

A car will precede each train ten minutes to take up passengers in the city. The last car will not stop, except at Broome st. and 27th street.

Freight Trains leave New York at 1 o'clock p.m.—

Returning, leaves Dover Plains at 12 o'clock m.

For Sunday Arrangements, see hand bills.
M. SLOAT, Sup't.

Ballard's Improved JACK-SCREW.

PATENTED.

THE ADVANTAGES OF THIS Screw for Stone Quarries, Railroads, Steam Boiler Builders, and for other purposes are superior to any other similar machine.

The improvement consists in being able to use either end of the screw, as occasion requires.

It is capable of raising the heaviest Locomotive with ease, being portable, strong and powerful, and not likely to get out of order.

Many Railroad Companies and Boiler Makers have them in use—by whom they are highly recommended.

JACK SCREWS, of various sizes, power and price, constantly on hand at the manufactory.

No. 7 Eldridge Street,
near Division Street.
New York, Jan. 19, 1850.



NICOLL'S PATENT SAFETY SWITCH FOR Railroad Turnouts. This invention for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design. It acts independently of the main track rails; being laid down or removed without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two castings and two rails; the latter, even if much worn or used, not objectionable.

Working models of the Safety Switch may be seen at Messrs. Davenport, Bridges & Kirk's Cambridge Port, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained, on application to the Subscriber, Inventor and Patentee.
G. A. NICOLLS,
Reading, Pa.

AMERICAN RAILROAD JOURNAL.

NEW YORK AND ERIE RAILROAD. CHANGE OF HOURS.

On and after Monday, May 6, 1850, the trains will leave as follows, by steamboat THOMAS POWELL, from the foot of Duane st. daily (Sundays excepted).
Breakfast and supper on board the boat.

WAY AND MAIL TRAIN—At 6½ a.m., stopping at all the stations—arriving at Corning and Jefferson about 10½ p.m., and at Buffalo next morning.

NIGHT TRAIN—at 5 p.m., stopping at all the stations and arriving at Geneva in time to connect with the Express train from Albany, and arrive at Buffalo at 7 p.m., next day.

AN EXPRESS TRAIN—Will commence running in a few days, of which due notice will be given.

FREIGHT TRAIN—Leave New York, from foot of Duane st. daily, (Sundays excepted) at 5 p.m. Freight for Geneva, Rochester and Buffalo, forwarded by Express freight train. CHAS. MINOT, Supt.

New York, May 2, 1850.

GEORGIA RAILROAD. FROM AUGUSTA TO ATLANTA—171 MILES.

AND WESTERN AND ATLANTIC RAILROAD, FROM ATLANTA TO DALTON, 100 MILES.

This Road, in connection with the South Carolina Railroad, and Western and Atlantic Railroad, now forms a continuous line, 408 miles in length, from Charleston to Dalton (Cross Plains) in Murray county, Ga. 32 miles from Chattanooga, Tenn.

RATES OF FREIGHT.

		Between Augusta and Dalton, 271 miles.	Between Charleston and Dalton, 408 miles.
1st class	Boxes of Hats, Bonnets, and Furniture, per cubic foot	\$0 18	\$0 28
2d class	Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs, and Confectionary, per 100 lbs.	1 00	1 50
3d class	Sugar, Coffee, Liquor, Bagging, Rope, Cotton, Yarns, Tobacco, Leather, Hides, Copper, Tin, Feathers, Sheet Iron, Hollow ware, Castings, Crockery, etc.	0 60	0 85
4th class	Flour Rice, Bacon, Pork, Beef, Fish, Lard, Tallow, Beeswax, Bar Iron, Ginseng, Mill Gearing, Pig Iron, and Grindstones, etc.	0 40	0 65
	Cotton, per 100 lbs.	0 45	0 70
	Molasses per hoghead	8 50	13 50
	" " barrel	2 50	4 25
	Salt per bushel	0 18	
	Salt per Liverpool sack	0 65	
	Ploughs, Corn Shellers, Cultivators, Straw Cutters, Wheelbarrows	0 75	1 50

German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Company will be forwarded free of commissions. Freights payable at Dalton.

F. C. ARMS, Sup't of Transportation.

To Miners and Mining Companies.

THE undersigned would respectfully call the attention of those persons engaged in mineral operations on Lake Superior to the following list of articles which will be sold on accommodating terms, viz:

- 600 bbls. Corn fed No. 1 Mess Pork.
- 500 " Stall fed Cured Beef.
- 25,000 lbs. " Sugar cased canvassed" Hams.
- 2,200 " Dried Beef.
- 60,000 " "Kiln dried" Corn Meal.
- 500 bush. White "Field" Beans.
- 300 " Canada" Peas.
- 500 " Dried Apples.
- 100 bbls. and half bbls. "cucumber" Pickles.
- 50 " Sour Krout.
- 30 bush. Onions.
- 1,000 Beefs' Tongues Smoked and in Pickle.
- 10,000 lbs. " Mould" Candles.
- 10,000 " Hard" Soap.

Also, a full and large supply of all articles that may be required by Mining Companies and those connected with them.

C. A. TROWBRIDGE, 127 Jefferson Avenue, Detroit, Michigan.

LITTLE MIAMI RAILROAD.—SUMMER ARRANGEMENT.

CINCINNATI & SANDUSKY.

FIRST Passenger Train leaves Depot on East Front street, at 5 o'clock 10 minutes A. M. stops for breakfast at Morrow, and arrives at Springfield at 11 10 A. M. Leaves Springfield for Sandusky at 11 50 A. M.

Second Passenger Train leaves Depot 3 P. M. arrives at Springfield at 9 P. M. Passengers take tea at Springfield, and leaves for Sandusky at 9½ P. M.

RETURNING—First Train leaves Springfield at 4 A. M. Stop for breakfast at Xenia, and arrives at Cincinnati at 10 15 A. M.

Second Train leaves Springfield at 2½ P. M. Stop for tea at Morrow, and arrives at Cincinnati, at 8½ P. M.

Passengers taking the Morning Train arrive at Sandusky at 9 P. M. Those taking the Afternoon Train arrive at 7½ A. M. next morning, and proceed directly on in the boats.

Passengers for Columbus, Zanesville, Wheeling, and intermediate towns, should take the 5, 10 A. M. Train. The Ohi Stage Company are running the following Lines in connection with the Trains:

A Daily Daylight Line to Columbus from Springfield in connection with the Morning Train from Cincinnati. Also, Daily Lines to Columbus, from Xenia and Springfield, connecting with the 3 o'clock, pm. Train from Cincinnati.

Fare from Cincinnati to Xenia	\$1 90
Do do Springfield	2 50
Do do Sandusky City	6 50
Do do Buffalo	10 00
Do do Columbus	4 50

For other information and through tickets, apply at the Ticket Office on Broadway, near Front-st., Cincinnati.

W. H. CLEMENT, Superintendent.

The Company will not be responsible for Baggage exceeding 50 dollars in value, unless the same is returned to the Conductors or Agent, and freight paid at the rate of a passage for every 500 dollars in value above that amount.

PHILADELPHIA, WILMINGTON, & BALTIMORE RAILROAD.

Summer Arrangement. April 1st, 1849.—Fare \$3.

Leave Philadelphia 8½ am., and 10 pm.

Leave Baltimore 9 am., and 8 pm.

Sunday—Leave Philadelphia at 10 pm.

" Baltimore at 8 pm.

Trains stop at way stations.

Charleston, S. C.

Through tickets Philadelphia to Charleston, \$20.

Pittsburg and Wheeling.

Through ticket, Philadelphia to Pittsburg, \$12.

" " Wheeling, 13.

Through tickets sold at Philadelphia office only.

Wilmington Accommodation.

Leave Philadelphia at 12 m. 4 and 7 pm.

Leave Wilmington at 7½ am., 4½ and 7 pm.

Newcastle Line.

Leave Philadelphia at 2½ pm.—Baltimore at 1½ pm

Fare \$3.—Second class, \$2.

N.B.—Extra baggage charged for.

I. R. TRIMBLE, Gen. Supt.

BALTIMORE AND SUSQUEHANNA RAILROAD.—Reduction of Fare. Morning and Afternoon Trains between Baltimore and York.—The Passenger Trains

run daily, except Sundays, as follows:

Leave Baltimore at 9 am. and 3½ pm.

Arrive at 9 am. and 6½ pm.

Leave York at 5 am. and 3 pm.

Arrive at 12½ pm. & 8 pm.

Leave York for Columbia at 1½ pm. & 8 am.

Leave Columbia for York at 8 am. & 2 pm.

Fare:

Fare to York \$1 50

" Wrightsville 2 00

" Columbia 2 12½

Way points in proportion.

PITTSBURG, GETTYSBURG, AND HARRISBURG.

Through tickets to Pittsburg via stage to Harrisburg

Or via Lancaster by railroad

Through tickets to Harrisburg or Gettysburg

In connection with the afternoon train at 3½ o'clock,

a horse car is run to Green Spring and Owings' Mill, arriving at the Mills at 5½ pm.

Returning, leaves Owings' Mills at 7 am.

D. C. H. BORDLEY, Supt.

Ticket Office, 63 North st.

PHILADELPHIA & READING RAILROAD.

Passenger Train Arrangement for 1849.

A Passenger Train will leave Philadelphia and Pottsville daily, except Sundays, at 9 o'clock am.

The Train from Philadelphia arrives at Reading at 12 18 m.

The Train from Pottsville arrives at Reading at 10 43 am.

Fares. Miles. No. 1. No. 2

Between Phila. and Pottsville, 92 \$3.50 and \$3.00

" " Reading 58 2.25 and 1.90

" Pottsville 34 1.40 and 1.20

Five minutes allowed at Reading, and three at other way stations.

Passenger Depot in Philadelphia corner of Broad and Vine streets.

BALTIMORE AND OHIO RAILROAD AND WASHINGTON BRANCH.

On and after January 1, 1850, Passenger Trains will run as follows:

Leave Baltimore for Ellicott's Mills, Frederick, Harper's Ferry, Martinsburg, Hancock and Cumberland, every morning at 7½ o'clock. This line carries the Great Mail, and connects with Post Coaches at Cumberland, for Wheeling and Pittsburg, over the National Road. Also with the Winchester Trains, at Harper's Ferry. N.B.—Passengers for Pittsburg take the steamers of the Monongahela slack water navigation at Brownsville, only 76 miles from Cumberland.

Leave Baltimore for Ellicott's Mills, Frederick and Harper's Ferry, daily, except Sunday, at 4½ pm.

Leave Baltimore for Washington City, daily, at 6 a.m. and 5 p.m.—daily, except Sunday, at 9 a.m.

The early train connects with the Great Southern Line, via Fredericksburg and Richmond, to Charleston.

Leave Cumberland for Baltimore, etc., at 8½ a.m., daily, connecting with the train from Winchester at Harper's Ferry—with the Evening Train to Washington City, at the Relay House—and with the Evening Train to Philadelphia, at Baltimore. Time for arriving at Baltimore, 5½ p.m.

Leave Harper's Ferry for Baltimore, daily, except Sunday, at 7½ a.m.—taking in Passengers who leave Frederick at 8½ a.m.

Leave Washington for Baltimore, daily, at 6 a.m. & 5½ p.m., and daily, except Sunday, at 9½ a.m.

The early train connects at the Relay House with the morning line to Cumberland and the West, and at Baltimore with the day line to Philadelphia and New York.

Through tickets are sold at Philadelphia and Baltimore for Pittsburg and Wheeling, and at Philadelphia and New York for Charleston, S. C., at the following RATES OF FARE.

To Pittsburg. Wheeling. Charleston. In winter. Summer. Win. Sum. ton.

From Philadelphia, \$13 \$12 \$14 \$13 \$20

" Baltimore, 11 10 12 11

" New York, 20

Passengers leaving New York not later than the afternoon line via Newark, etc., reach Baltimore in season to take the next morning's lines to the South and West.

Passengers leaving Cumberland in the morning and Washington in the evening lines, reach Baltimore in season to proceed to Philadelphia by the evening train at 8 p.m.—so as to reach New York before noon the next day.

An Emigrant line by burthen cars, leaves Baltimore every morning, except Sundays, at 4 o'clock—connecting with a line of the previous day from N. York—and at Cumberland with a wagon line to Pittsburg or Brownsville and Wheeling. Fare by this line:

From New York to Pittsburg, \$3 00

" Philadelphia 6 50

" Baltimore 5 00

By order, J. T. ENGLAND, Agent.

SOUTH CAROLINA RAILROAD.—A Passenger Train runs daily from Charleston, on the arrival of the boats from Wilmington, N. C., in connection with trains on the Georgia, and Western and Atlantic Railroads—and by stage lines and steamers connects with the Montgomery and West Point, and the Tusculum Railroad in N. Alabama.

Fare through from Charleston to Montgomery daily

Fare through from Charleston to Huntsville, Decatur and Tusculum

The South Carolina Railroad Co. engage to receive merchandise consigned to their order, and to forward the same to any point on their road; and to the different stations on the Georgia and Western and Atlantic Railroad; and to Montgomery, Ala., by the West Point and Montgomery Railroad.

JOHN KING, Jr., Agent.

LAKE CHAMPLAIN

SAULT HARBOR

The Proprietors of the Sault Harb. Co. have prepared during the early of the season of the year of the Sault Harb. Co. a line of boats from the Sault Harb. Co. to the Sault Harb. Co. for the purpose of carrying passengers and freight.

LAKE SUPERIOR

For the purpose of carrying passengers and freight, the Proprietors of the Lake Superior Co. have prepared during the early of the season of the year of the Lake Superior Co. a line of boats from the Lake Superior Co. to the Lake Superior Co. for the purpose of carrying passengers and freight.

LAKE MICHIGAN

For the purpose of carrying passengers and freight, the Proprietors of the Lake Michigan Co. have prepared during the early of the season of the year of the Lake Michigan Co. a line of boats from the Lake Michigan Co. to the Lake Michigan Co. for the purpose of carrying passengers and freight.

LAKE HURON

For the purpose of carrying passengers and freight, the Proprietors of the Lake Huron Co. have prepared during the early of the season of the year of the Lake Huron Co. a line of boats from the Lake Huron Co. to the Lake Huron Co. for the purpose of carrying passengers and freight.

LAKE ERIE

For the purpose of carrying passengers and freight, the Proprietors of the Lake Erie Co. have prepared during the early of the season of the year of the Lake Erie Co. a line of boats from the Lake Erie Co. to the Lake Erie Co. for the purpose of carrying passengers and freight.

LAKE ONTARIO

For the purpose of carrying passengers and freight, the Proprietors of the Lake Ontario Co. have prepared during the early of the season of the year of the Lake Ontario Co. a line of boats from the Lake Ontario Co. to the Lake Ontario Co. for the purpose of carrying passengers and freight.

LAKE ST. CLAIR

For the purpose of carrying passengers and freight, the Proprietors of the Lake St. Clair Co. have prepared during the early of the season of the year of the Lake St. Clair Co. a line of boats from the Lake St. Clair Co. to the Lake St. Clair Co. for the purpose of carrying passengers and freight.

LAKE MICHIGAN

For the purpose of carrying passengers and freight, the Proprietors of the Lake Michigan Co. have prepared during the early of the season of the year of the Lake Michigan Co. a line of boats from the Lake Michigan Co. to the Lake Michigan Co. for the purpose of carrying passengers and freight.

LAKE SUPERIOR LINE. Cleveland and Detroit,

TO
SAULT STE. MARIE, CARP RIVER, COPPER
HARBOR, EAGLE RIVER, ISLE ROYAL,
ONTONAGON AND LA POINT.

The Proprietors of this line having added largely to their facilities for transportation on this route, will be prepared to ship Goods to any part of Lake Superior during the coming season, and contract for the delivery of Copper Ore to either Boston, New York, or Pittsburg, being connected with the Troy and Western Line, from Detroit to New York, and a Daily line of Canal Boats

FROM CLEVELAND TO PITTSBURG.

Lakes Huron and Erie.

For this portion of the route, the Proprietors are fitting up a large Boat, with a powerful low pressure engine, and a spacious upper cabin, with state rooms, to take the place of the Franklin, which will leave CLEVELAND every Monday Evening at 7 o'clock, and DETROIT every Tuesday Afternoon at 2 o'clock, going to MACKINAW and the BRUCE MINES, and arriving at SAULT STE. MARIE on Thursday morning. The Franklin will leave Detroit every Friday for Mackinaw and Sault Ste. Marie, via the Bruce Mines. For the transportation of heavy masses of Copper, a Propeller will make trips as occasion may require.

Lake Superior.

Mr. McKnight, one of the Proprietors, is constructing a Wharf to the Channel Bank, at the head of the Portage, which will enable them to load their Propellers, NAPOLEON AND INDEPENDENCE, with but 24 hours' detention at Sault Ste. Marie. One of the Propellers will leave every Friday, making a trip through the Lake, touching at Carp River, Ontonagon and Isle Royal.

The great expense incurred in building wharves to facilitate business, it is hoped, will entitle the Proprietors of this Line to Patronage. Goods shipped by either G. WILLIAMS & CO., or S. P. BRADY, Agents, Detroit, will be received through to their destination on Lake Superior. Letters addressed to S. McKnight, Detroit, or Sault Ste. Marie, will receive attention. Supplies will be purchased and delivered at any point on Lake Superior, on the best possible terms, and all orders filled with articles of as good quality as the market affords.

Canada Line.

To facilitate the forwarding of Goods for the Canada Companies, a connection has been made with PARK & CO., managing owners of the Propeller *Earl Cathcart*, forming a direct line from Montreal to the Bruce Mines and Sault Ste. Marie. Goods sent by this line, care of PARK & CO., Amherstburg, or CHAS. HUNT, Esq., Windsor, will be immediately forwarded, and at prices decidedly to the advantage of parties in Toronto or other Canadian Ports.

S. McKnight,
J. R. LIVINGSTON,
P. B. BARBEAU.

January, 1850.

AGENTS.

G. Williams & Co., Detroit.
S. P. Brady,
P. L. Sternberg & Co., Buffalo.
Charles Hunt, Windsor.
Park & Co., Amherstburg.
W. A. Otis & Co., Cleveland.
Crawford and Chamberlain,
Rice, Clapp & CO., New York.
W. M. Gorrie, Toronto.

MACHINE WORKS OF ROGERS KETCHUM & GROSVENOR, Patterson, N. J. The undersigned receive orders for the following articles manufactured by them of the most superior description in every particular. Their works being extensive, and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and dispatch.

Railroad Work.—Locomotive Steam Engines and Tenders; Driving and other Locomotive Wheels, Axles Springs and Flange Tires; Car Wheels of Cast Iron a variety of patterns and chills; Car Wheels of Cast Iron with wrought tires; Axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and millwright work generally, hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR,
Patterson, N. J. or 74 Broadway, New York.

CENTRAL RAILROAD FROM SAVANNAH TO MACON, (Ga.) 190 1/2 miles.

Passenger Trains leave Savannah and Macon daily at 7 a.m.
Passenger trains arrive daily at Savannah, 6 15 p.m.
" " " Macon, 6 45 p.m.

This road, in connection with the Macon and Western road from Macon to Atlanta, and the Western and Atlantic road from Atlanta to Dalton, now forms a continuous line of 391 1/2 miles in length* from Savannah to Dalton, Murray county, Ga. and with the Memphis Branch railroad, and Stages connect with the following places:

Tickets from Savannah to Macon,	\$5 75
" " " Atlanta,	9 50
" " " Augusta,	6 50
" " " Columbus,	15 00
" " " Opelika,†	17 00
" " " Jacksonville, Ala.,	20 00
" " " Talladega,	
" " " Huntsville } Ala.,	22 00
" " " Decatur,	
" " " Tusculumbia, Ala.,	22 50
" " " Tuscaloosa, Ala.,	
" " " Columbus, Miss.,	28 00
" " " Aberdeen,	
" " " Holly Springs,	
" " " Nashville, Tenn.,	
" " " Murphreesboro',	25 00
" " " Columbia, do.,	
" " " Memphis, do.,	30 00

An extra Passenger Train leaves Savannah on Saturdays, after the arrival of the Steam-ships from New York, for Macon, and connects with the Macon and Western railroad; and on Tuesdays, after the arrival of the Macon and Western cars, an extra Passenger Train leaves Macon to connect with the Steam ships for New York.

Stages for Tallahassee and intermediate places connect with the road at Macon, Mondays, Wednesdays, and Fridays, and with Milledgeville at Gordon daily.

Passengers for Montgomery, Mobile and New Orleans take stage for Opelika from Barnesville through Columbus, a distance of 97 miles, or from Griffin through West Point, a distance of 93 miles.

* The Western and Atlantic railroad will soon be completed between Dalton and Chattanooga, a distance of 423 1/2 miles from Savannah, of which due notice will be given.

† Head of the West Point and Montgomery railroad, on which the fare to Montgomery is about \$2.

RATES OF FREIGHT FOR MERCHANDISE GENERALLY, FROM SAVANNAH TO MACON.

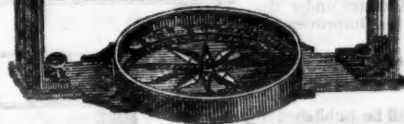
Measurement Goods.—Boxes of hats, bonnets, furniture, shoes, saddlery, dry-goods, and other measurement goods, per cubic foot - 13 cents.
Crockery Ware, in crates, boxes or hhds, per cubic foot. - 10 "
Goods by Weight, 1st class.—Boxes of glass, paints, drugs & confectionary, per 100 lbs., 50 "
2d class—Sugar, coffee, rope, butter, cheese, lard, tobacco, leather, hides, copper, sheet and hoop iron, tin, hard and hollow ware, rice, boxes soap and candles, bagging, and other heavy articles not enumerated below, per 100 lbs., - 45 "
3d class—Flour, bacon, liquors, pork, beef, fish, tallow and beeswax, per 100 lbs., 40 "
4th class—Mill-gearing, pig and bar iron, grind and millstones, nails, spikes and coal, 100 lb. 30 "
Barrels of beets, bread, crackers, potatoes, ice, fruit, oysters, onions, and all light bbls, each, 75 "
Oil and molasses per hhd., (smaller casks in proportion) - \$6 00 "
Salt per sack not exceeding 4 bushels, - 50 "
Goods consigned to Thos. S. Wayne, Forwarding Agent, Savannah, will be forwarded free of commission. WM. M. WADLEY, Supt.
Savannah, Ga., February 24, 1850.

ENGINEERS' AND SURVEYERS'

INSTRUMENTS MADE BY

EDMUND DRAPER,

Surviving partner of
STANCLIFFE & DRAPER.



No 23 Pear street, below Walnut,
near Third, Philadelphia.

GREAT NORTHERN & SOUTHERN MAIL ROUTE.

From New York to Charleston, S. C. daily, via Philadelphia, Baltimore, Washington City, Richmond, Petersburg, Weldon and Wilmington, N. C.

Travellers by this route, leaving New York at 4 1/2 p. m., Philadelphia at 10 p. m., and Baltimore at 6 a. m., proceed without delay at any point on the route, arriving at Richmond, Va., in a day, and at Charleston, S. C., in two and half days from New York.

Through tickets from New York to Charleston, \$20 00
" " " Baltimore to Richmond, 7 00
" " " Petersburg, 7 50

For tickets to Richmond and Petersburg, or further information, apply at the Southern Ticket Office, adjoining the Washington Railroad Ticket Office, Pratt Street, Baltimore. STOCKTON & FALLS.
October, 1849.

ST. LAWRENCE & ATLANTIC RAILROAD COMPANY.

Notice is hereby given that the
Trains run twice per day between
Montreal and St. Hyacinth, leaving each terminus alternately, until further notice.

Leaving St. Hyacinth at - - 7 am.
" " " " - - 3 pm.
Leaving Montreal at - - 10 am.
" " " " - - 6 pm.

THOMAS STEERS, Secretary.

May 31, 1849.

WESTERN AND ATLANTIC RAILROAD, FROM ATLANTA, GA., TO CHATTANOOGA, TENN. 140 Miles.

PASSENGER SCHEDULE.

Leave Chattanooga daily, Sundays excepted, at 8 1/2 a. m.
Arrive at Kingston - - - by 12 m.
" Dalton - - - by 3 p. m.
" Chattanooga - - - by 6 "
Leave Chattanooga daily, Sundays excepted, at 7 a. m.
Arrive at Dalton - - - by 9 1/2 "
" Kingston - - - by 12 m.
" Atlanta - - - by 4 p. m.

The fare is now permanently reduced to three cents per mile for way as well as through Passengers; children and servants two cents per mile.

There are two Railroad routes from Atlanta to the Seaboard, viz: one by the Georgia Railroad to Augusta, and thence to Charleston by the South Carolina Railroad; the other by the Macon and Western Railroad to Macon, and thence to Savannah by the Central Railroad.

At Kingston, 60 miles north of Atlanta, the Rome Railroad branches off to Rome on the Coosa river, which admits of steamboat navigation as far down as Greensport in Ala. Mail stages are in operation from Rome leading towards Tuscaloosa, Ala., Columbus, Miss., Memphis, Tenn., etc.

At Dalton, 100 miles north of Atlanta, a line of stages branches off to Knoxville, Tenn., which will be superseded by the East Tennessee and Georgia Railroad as rapidly as the same is completed.

At Chattanooga a number of steamboats are in successful operation on the Tennessee river, and from that terminus of the road stages run to Nashville, which will be superseded by the Nashville and Chattanooga Railroad as rapidly as the same is completed.

WM. D. FULLTON, Supt. Transp.
Transportation W. & A. R. R.,
Atlanta, March, 1850.

CAR MANUFACTORY CINCINNATI, OHIO.



KECK & DAVENPORT would respectfully call the attention of Railroad Companies in the West and South to their establishment at Cincinnati. Their facilities for manufacturing are extensive, and the means of transportation to different points speedy and economical. They are prepared to execute to order, on short notice, Eight-Wheeled Passenger Cars of the most superior description. Open and Covered Freight Cars, Four or Eight-Wheel Crank and Lever Hand Cars, Trucks, Wheels and Axles, and Railroad Work generally.
Cincinnati, Ohio, Oct. 2, 1848.